Southwestern Medicine

OFFICIAL ORGAN OF

ARIZONA STATE MEDICAL ASSOCIATION — NEW MEXICO MEDICAL SOCIETY

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

VOL. XIX. NOVEMBER, 1935 No. 11

ANNUAL SUBSCRIPTION $2 SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

SURGICAL TREATMENT IN PULMONARY TUBERCULOSIS

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(Read before the New Mexico State Medical Society, at its Fifty-third Annual Session, held at Albuquerque, N.M., May 23 to 25, 1935.)

Induced pneumothorax as a therapeutic measure in the treatment of pulmonary tuberculosis continues to hold its well deserved place.

Where pathological conditions, such as adhesions, prevent the application of artificial pneumothorax, other surgical methods are available that will rest the diseased lung.

The most frequently used operations are phrenicectomy, and thoracoplasty. Intrapleural pneumolysis either by open or closed method by the division of adhesions may enable artificial pneumothorax to be more satisfactorily used in collapsing the apex.

Extrapleural pneumolysis with the insertion of parrafin or muscle flaps may be used in the obliteration of apical cavities (apicolosis).

Multiple intercostal neurotomy (Alexander) has been used to paralyze the intercostal muscles, thereby limiting motion and providing a certain amount of rest to the diseased lung.

Phrenicectomy is a safe minor operation. By its use there is slight reduction of the thoracic cavity and a limitation of the movement of the lung; it also has a favorable action on apical lesions with a retractile tendency from pleural adhesions. It is of limited value in the chronic caseous, fibro-caseous, and ulcerative lesions. It is rarely of benefit in acute progressive exudative lesions.

Thoracoplasty is most useful in the essentially unilateral, inactive fibrous, fibrocaseous, and ulcerative pulmonary tuberculosis, with adhesions, cavitation and hemorrhage.

The patient should be in fairly good general condition. It is seldom advised in patients under 15 or over 40 years of age. It is usually contraindicated during acute exacerbations and where there are severe complications of the kidney and intestines.

Thoracoplasty should not be attempted in terminal cases. Exudative cases will have a high mortality from this operation.

Obliteration of the cavity is essential for the cure of empyema. Thoracoplasty may be required to obliterate a residual empyema cavity with rigid walls.

The operation of gradual, paravertebral thoracoplasty, is the standard procedure for permanent collapse of the lung. It is performed under basal-local or basal-gas-oxygen-ethylene anaesthesia. In certain cases only an apical thoracoplasty is indicated. Others will require two or three stage operations. Occasionally it may be necessary to collapse the entire chest wall by lateral and anterior resection of the ribs, in graded operations of from four to 12 procedures. The number of stages required will be determined according to patient's resistance and lesions requiring collapse.

It was formerly considered that a complete thoracoplasty was required in most cases of pulmonary tuberculosis that required surgical collapse. This opinion was based upon the theory that there was likelihood of an extension of the tubreculous process below the demonstrable lesion if only a partial or limited rib resection was done. However, there is now sufficient evidence to contradict this theory. In my opinion, a limited resection of ribs at the apex, sufficient to collapse the cavities, is adequate to produce an arrest of the disease, and allow the base to function without danger of new involvement. This type of operation does not subject the patient, a substandard risk, to as many surgical operations. The danger is diminished, and the economic loss is not so great.

How can you estimate the number of ribs that must be removed in order to collapse the

lesion? My estimate is based upon an examination of the Roentgen ray plate. By counting the ribs from the first downward until you reach the lower border of the lesion you may determine the proper number of ribs to be removed. Disregard the rib markings on the anterior surface.

CONCLUSIONS: Induced pneumothorax in the treatment of tuberculosis continues to hold its well deserved place.

When pathological conditions, such as adhesions interfere with artificial pneumothorax surgery offers many accessory operations for supplementing collapse therapy.

Graduated paravertebral thoracoplasty in one or more stages is of distinct advantage in arresting essentially unilateral pulmonary tuberculosis.

Apical thoracoplasty is indicated in chronic upper lobe lesions where the base is free of disease.

Surgery of the chest has tremendously advanced, and is becoming an important chapter in the progress of medical science. It is assisting in the prevention of the dissemination of pulmonary tuberculosis by promoting arrest of the disease.

SEVERING ADHESIONS IN ARTIFICIAL PNEUMOTHORAX

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Rest is generally the most important factor in the treatment of pulmonary tuberculosis. In a large number of cases more intensive rest of the diseased lung is desired than is offered by routine treatment and may be obtained by one or more of the surgical procedures now in use, such as, artificial pneumothorax, interruption of the phrenic nerve, or thoracoplasty. Artificial pneumothorax is by far the most widely used form of collapse therapy, the success of which depends on the degree of collapse. Since collapse is being instituted earlier at present than it was a few years back, the results are more gratifying. This is due in part to the early diagnoses. Due to the pleural adhesions, success is not obtained in a large number of cases in which artificial pneumothorax is used. It is often possible to convert an ineffective pneumothorax case into a successful one by severing the adhesions. Since this was proposed by Jocobaeus[1] in 1913, there has been a gradual increase in its popularity.

Ten consecutive cases in which adhesions were severed by the closed intra-pleural pneumolysis method are reported in this paper. The electrosurgical method was used in all the cases. The electrodes used were the same as those designed by Matson[2]. Briefly the procedure used at this hospital is as follows: A stereoscopic examination is made on all cases in which artificial pneumothorax, after having been continued from three to six months, is unsuccessful because of pleural adhesions. If there is a possibility of these adhesions being severed, a thorascopic examination is advised. It is impossible to tell just what can be done in a case until a thorascopic examination is made[3]. The thorascope as designed by Unverricht[4] is used in making this examination. The pre-operative preparation of the patient for the thorascopic examination and intra-pleural pneumolysis is the same as for any major thoracic operation. One or two days before the operation a pneumothorax refill is given, and if there is an appreciable amount of pleural fluid present, it is aspirated. Morphine sulphate gr. ¼ is given just before the patient is taken to the operating room. The patient is placed on the operating table in as comfortable a position as possible with the operative side up. From the stereoscopic study a site is selected for the introduction of the first trocar and bakelite cannula. This site is usually in the anterior axillary line in the fourth interspace. The skin, intercostal tissues, and pleura, are infiltrated with one per cent procaine and a small skin incision made, through which the trocar and cannula are inserted. The thorascope is inserted through the cannula and the site for the introduction of the second cannula is determined. A dark operating room is used as it intensifies the intra-thoracic light. It is sometimes necessary to change the location of one of the cannulae for better approach to an adhesion. In the majority of the cases reported in this paper the second cannula was introduced at the lower angle of the scapula. After the electrode has been inserted through the anterior cannula, with the thorascope in

the posterior cannula, and the proper approach to the adhesion obtained, the adhesion is coagulated and severed with the high frequency current. We have found that by setting the Bovie unit at 32 for coagulation and 52 for cutting, satisfactory results are obtained. Following an operation each wound is closed with a deep suture of catgut' A small round pressure bandage is placed over the incision to prevent emphysema.

The post-operative treatment is absolute bed rest with the side operated upon up for one to two days. Cough is controlled with codeine, or morphine when necessary. A reading of the intra-pleural pressure is taken during the first week following the operation and refills are given as indicated. If the adhesion is large or there are multiple adhesions, the operation may have to be done in more than one stage.

The important indications for an intra-pleural pneumolysis are: In all cases in which unsatisfactory collapse has been obtained after three to six months; contracting fibrotic adhesions that are obliterating the pleural space; cases which require a high positive pressure to maintain an adequate collapse (in these there is danger of tearing into cavities); an early closure of the cavity is desired to prevent spread of the infection to other parts of the body.

In this series of cases no free bleeding was encountered during any of the operations. In several cases slight oozing resulted which was easily controlled with the coagulative current.

The temperature was elevated in every case following the operation gradually returning to normal usually within a week. In only one case was there an elevation of temperature for a month following the operation.

Pleural effusions did not present serious difficulty. In the majority of cases without effusion before a small amount developed following the operation. This, as a rule, was absorbed in one to two weeks. In those cases which had effusion before the operations to the extent requiring aspiration, there was noticeable lessening following the operations.

CASE REPORTS

Case 2076, male, 21, was admitted to this hospital on October 19, 1931. He gave a history of a severe attack of influenza in May, 1931, followed by night sweats, elevated temperature, rapid pulse and a dry cough. These symptoms continued, and on admission to the U. S. Marine Hospital in New Orleans on August 5, 1931, a diagnosis of pulmonary tuberculosis moderately advanced was made. The physical examination and x-ray findings showed an increase in fibrosis on the right with scattered infiltration, with cavity formation just below the clavicle on the left. The sputum examination was positive for tubercle bacilli. Artificial pneumothorax, left, was started at this hospital on January 11, 1932. Refills were given every week for six months and then every other week, 200-500 c.c. of air being given each time and a negative pressure being maintained. The sputum became negative by September, 1932. The x-ray examination on October 10, 1933, showed, that the cavity had not completely closed, being held open by two long adhesions, and that there was a small amount of fluid present. The x-ray picture taken on August 15, 1934, showed about the same as before except that there was better collapse and a decrease in the amount of fluid. The cavity was still open.

An intra-pleural pneumolysis was performed on August 18, 1934. The thorascopic examination at this time showed two cord adhesions one cm. in diameter and five cm. and 5.5 cm. in length. respectively, attached from the anterior axillary region to the lower part of the upper lobe. Both of these adhesions were under considerable tension and were fibrotic. They were cut two cm. from the chest wall after which the severed ends were seen to retract about 3.5 cm. Following this operation, the x-ray examination showed complete collapse of the lung. Refills were given at from two to three week intervals, the amount of air at each refill being 50-200 c.c.

Case 2340, male, 24, was admitted to this hospital on April 11, 1934. He gave a history of a dry cough starting in the spring of 1933, with an attack of influenza in November of that year. The patient never fully recovered after the influenza. There was a gradual loss of weight, loss of strength and his cough became productive. He entered the U. S. Marine Hospital in Galveston, Texas, on October 16, 1933, at which time a diagnosis of pulmonary tuberculosis was made. The x-ray and physical findings showed scattered infiltration on the right with more marked infiltration and cavity form-

ation of the upper lobe on the left. Artificial pneumothorax was started on the left side on October 24, 1933. The patient remained at the hospital in Galveston until the first part of April, 1934. On admission to this hospital on April 11, 1934, the following diagnoses were made: Tuberculosis, pulmonary, chronic, active, far advanced (B); tonsillitis chronic, tuberculosis, epiglottis. The treatment started in Galveston was continued. X-ray and physical findings at this time showed a small amount of infiltration on the right and partial collapse of the left lung; the cavity in the upper being held open by an adhesion. The sputum on repeated examinations was positive. The throat examination showed a marked tuberculous involvement of the epiglottis.

An intra-pleural penumolysis was performed on January 29, 1935. The thorascopic examination at this time showed a cord adhesion one-half cm. in diameter and 10 cm. in length, attached between the partially collapsed upper lobe and the second rib in the mid-axillary line. A small amount of free fluid was in the pleural cavity. The adhesion was coagulated and cut 1.5 cm. from the chest wall. The severed ends of the adhesion were seen to separate about 2.5 cm.

The x-ray picture taken on February 17, 1935, showed practically complete collapse of

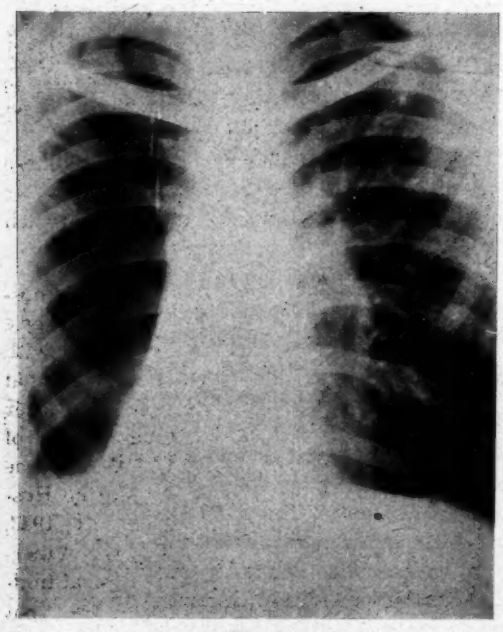

Fig. 1

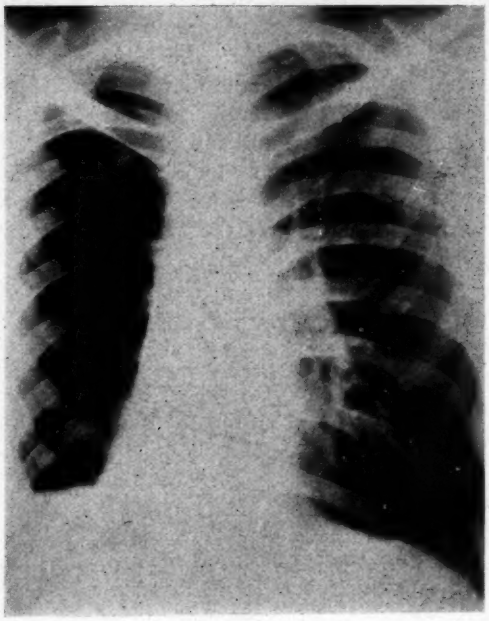

Fig. 2

Fig. 1 shows adhesion in case number one before the pneumolysis. Fig. 2 is a picture of the same case after the operation.

the left lung with collapse of the cavity. The sputum has been negative on five examinations since the operation. There has been a marked improvement in the throat condition. The temperature, since operation, varies between 36.2 and 37 degrees C., and pulse between 80 and 100. The patient's general condition at present (May 21 1935) is better than at any time since admission to this hospital.

Case 2307, male, 21, was admitted to this hospital on December 15, 1933. He gave a history of having been subject to frequent severe colds for about two years. In December, 1932, he began to have night sweats, developed a dry cough and noticed a marked loss of strength. He entered the U. S. Marine Hospital in Seattle, Washington, in February, 1933, at which time the x-ray and physical findings showed moderate infiltration of both upper lobes with a large cavity in left apex. Artificial pneumothorax was started on May 2, 1933, after a period of observation of three months, and was continued at this hospital. The x-ray examination made after admission to this hospital showed a small amount of infiltration on right with almost complete collapse on the left, there being a small part of the upper lobe at the

level of the cavity that had not collapsed completely due to adhesions. The sputum was positive on January 18, 1934, and April 6, 1934.

A left intra-pleural pneumolysis was performed on August 16, 1934. The thorascopic examination at this time showed two cord adhesions running from partially collapsed portion of the upper lobe laterally to the second interspace anterior axillary line (0.5x6 cm. and 1.5x6 cm.) No free fluid was seen in the pleural cavity. Both of these adhesions were coagulated and cut 1.5 cm. from the chest wall. The severed ends were seen to separate between three cm. and six cm. The temperature was normal before operation, and for one week after operation was between 37 and 38 degrees C. The sputum examination has been negative on 10 occasions since the operation. The patient's general condition was satisfactory for five months following the intra-pleural pneumolysis. He developed a pleural effusion the latter part of January, 1935, which had to be aspirated several times and has had a marked elevation of temperature. The cause of this setback has not been determined. The patient still has one cord adhesion in the tip of the apex. It was not severed at the first operation on account of its inaccessibility.

Case 2305, male, 18, was admitted to this hospital on December 15, 1933. He gave a history of a productive cough and a gradual loss of weight, starting in the summer of 1933. In August of that year the x-ray and physical findings showed extensive infiltration throughout the upper right lobe. No definite cavity; caseous area three cm. in diameter in upper right lobe. A diagnosis of pulmonary tuberculosis, moderately advanced, was made and artificial pneumothorax instituted in September, 1933. The x-ray examination one year later showed about 50 per cent collapse of the right lung. The sputum was negative. This degree of collapse was maintained by weekly refills of from 200 to 600 c.c. of air.

An intra-pleural pneumolysis, right, was performed on September 13, 1934. A thorascopic examination at this time showed a small amount of free fluid in the pleural cavity. A large band adhesion (7 cm. long and 0.5 cm. in diameter) attached between the lower border of the upper lobe and the chest wall at the posterior axillary line. A short adhesion (2.5 cm. long and .5 cm. in diameter) just back of and parallel to the long adhesion, and two string adhesions (about 2.5 cm. long) in the posterior gutter near the spine were seen. The long adhesion mentioned above and the two string adhesions were coagulated and severed. There

Fig. 3

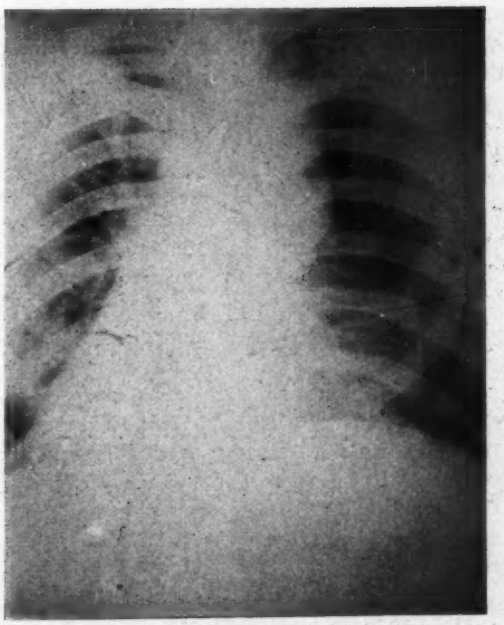

Fig. 4

Fig. 3 and Fig. 4 show the degree of collapse in case five before and after the pneumolysis. Note the degree of selective collapse in this case.

followed a moderate expansion of the lung which made it impossible to see the small adhesion. The x-ray examination made on September 21, 1934, showed better collapse. Refills have been given every other week since operation, and the amount of air necessary to maintain an adequate collapse is less than before the operation.

Case 2383, male, 25, was admitted to this hospital on August 6, 1934. He gave a history of first noticing a gradual loss of weight in the summer of 1932. In January, 1933, he began to run an afternoon fever and tired on the least exertion. He expectorated a small amount of blood in January, 1934, but did not consult a doctor until June of that year, at which time a diagnosis of pulmonary tuberculosis was made. At the time of admission to this hospital he showed infiltration of the upper lobe with cavity formation behind right clavicle. The left lung was apparently negative. The sputum examination at this time was positive. Artificial pneumothorax was started on October 10, 1934. A band adhesion over the site of the cavity prevented adequate collapse and closure of the cavity.

An intra-pleural pneumolysis was performed on March 6, 1935, and the thorascopic examination at this time showed a large fold adhesion (6 cm. long, 3 cm. wide and .5 cm. thick) from the partially collapsed upper lobe laterally to posterior axillary line. Three small string adhesions were seen in the apex. The fold adhesion was coagulated and severed two cm. from the chest wall, the ends of which were seen to separate about six cm. It was not thought necessary to cut string adhesions as they were not interferring with collapse. The x-ray examination made on March 8, 1935, showed about two-thirds compression of the right lung with closure of the cavity. Five sputum examinations since the operation—the last being run on March 30, 1935—were negative. The temperature was normal before and only slightly elevated for two days following the operation. The prognosis of this case seems more favorable at present than at any time since admission.

Case 1558, male, 32, was admitted to this hospital on February 10, 1928. He gave a history of a productive cough, loss of weight, and blood-streaked sputum during the summer of 1927. The x-ray and physical examinations showed scattered infiltration throughout the upper two lobes on the right. The patient did not improve under routine hospital treatment, and shelled out a cavity about four cm. in diameter in the right apex. Artificial pneumothorax was started on September 19, 1932. Complete closure of the cavity was prevented by adhesions over this area. Pleural fluid formed which had to be aspirated on a number of occasions because of severe pressure symptoms. Examination of the aspirated fluid on November 11, 1934, showed numerous pus cells. The sputum was positive. The x-ray examination on April 18, 1935, showed the cavity still open and a small amount of fluid. Examination of the chest wall at this time showed several small unhealed skin lesions which were the result of the aspirations. The patient had a severe cough and was expectorating about four cups a day.

An intra-pleural pneumolysis, left was performed on April 24, 1935. The thorascopic examination showed a small amount of free fluid, a thickened pleura covered with fibrin, and several adhesions preventing complete collapse of the upper lobe. The lower of these adhesions extended from the middle of the lower border of the upper lobe to the upper axillary region (6 cm. long and 1 cm. wide). A short adhesion (2.5 cm. long and .5 cm. wide) extended from the lower border of the upper lobe running posteriorly to the chest wall at the level of the fourth rib. Above these two adhesions were several string adhesions. The two large adhesions mentioned above were coagulated and severed about 1.5 cm. from the chest wall. The ends of these two adhesions were seen to separate about 2.5 cm. after they had been cut.

The x-ray examination one week following the operation showed better compression of the right lung and a small amount of fluid. Before the pneumolysis the prognosis of this case was poor. The patient is expectorating about one-half cup a day at present as compared with four before the operation. There has been a marked decrease in the severity of his cough. The sputum is positive. The patient's general condition is better at present than at any time within the past ten months.

Case 1961, male, 38, was admitted to this hos-

pital on October 16, 1930. He gave a history of gradual loss of weight, a severe cold and a productive cough in 1925, at which time a diagnosis of pulmonary tuberculosis was made. He remained in the hospital from that time until January, 1929, at which time he left the hospital against medical advice. He developed a severe cold in October, 1930, had a severe hemorrhage and re-entered the hospital with extensive infiltration of the right upper lobe and a cavity three cm. in diameter behind the clavicle. The left side showed scattered areas of fibrosis with no activity. He refused artificial pneumothorax, but finally it was started in October, 1933. X-ray examination made on September 6, 1934, showed about a 75 per cent collapse, the cavity being held open by a broad band adhesion.

An intra-pleural pneumolysis, right, was performed on September 28, 1934. The thoracoscopic examination showed partial collapse, complete collapse being prevented by a broad band adhesion extending from the lower border of the upper lobe laterally to mid-axillary line. The adhesion was four cm. in diameter by three cm. long by two cm. in thickness. This was coagulated and cut two cm. from the chest wall until it was approximately half way through. Due to the patient's general condition it was thought better to complete the operation at another time. The x-ray examination made on April 18 1935, showed much better collapse of the lung. The large adhesion which had been partially cut as mentioned above had stretched until it appeared to be more of a cord adhesion and there was apparent closure of the cavity. A small amount of free fluid lay in the phrenic angle. The patient has refused to have a second operation. The sputum has been negative on repeated examinations since December, 1933. He had an interruption of the right phrenic nerve before artificial pneumothorax was instituted.

Case 2304, male, 38, was admitted to this hospital on December 15, 1933. He gave a history of gradual loss of weight and a productive cough during the month of January, 1933. He entered the U. S. Marine Hospital, Seattle, in September of that year, at which time x-ray and physical findings showed moderate infiltration of both sides with cavity formation in the right apex. Artificial pneumotharax was started on September 22, 1933, and continued at this hospital. X-ray examination on July 11, 1934, showed about five-sixth's compression of the upper lobe and about one-fourth compression of the lower lobes, complete collapse being prevented by a band adhesion over the site of the cavity. A small amount of fluid was at the base. The patient was doing nicely until July 10, 1934, at which time he had a moderate hemorrhage (½ cup).

An intra-pleural pneumolysis, right, was performed on July 28, 1934, and the thoracoscopic examination showed a band adhesion about five cm. long over the site of the cavity, running laterally to mid-axillary region. A small amount of fluid was in the pleural cavity. This adhesion was severed about two cm. from the chest wall. The temperature was elevated for two days following the operation. The sputum was positive on August 1, 1934. Since that date 10 negative examinations have been made. X-ray showed collapse of the cavity following the operation.

Case 1870, male, 26, was admitted to this hospital on March 22, 1930. He gave a history of developing a severe cold and a productive cough in November, 1929, followed by a severe hemorrhage, pain in the chest and night sweats. On admission to this hospital x-ray and physical findings showed moderate infiltration of both apices with a cavity three cm. in diameter at the level of the third rib front, on the left. The sputum at this time was negative.

An intra-pleural pneumolysis, left, was performed on September 11, 1934. The thoracoscopic examination showed a cord adhesion one cm. in diameter and six cm. in length extending from the upper and posterior portion of the lower lobe to the posterior chest wall in the fifth interspace. There was also a fold adhesion, the anterior and lower border at the level of the third rib in the mid-axillary line. The cord adhesion was coagulated and cut 1.5 cm. from the chest wall; the cut ends were seen to separate about four cm. The fold adhesion was then coagulated and cut for a distance of about two cm. at its attachment to the chest wall. The cut area of this adhesion separated into a "V" shape.

Following the operation the temperature was elevated for five weeks, and pleural effusion developed which had to be aspirated four times (200 to 600 c.c., the last aspiration being

on Nov. 9, 1934). At present the patient's general condition is good.

The x-ray examinations following the operation showed better collapse of the left lung. The sputum examination is negative. Refills are being given every three weeks at present, and 100 c.c. of air is sufficint to maintain an adequate collapse. This is considerably less than was necessary before the intra-pleural pneumolysis.

Case 2438, male, 31, was admitted to this hospital on February 24, 1935. He gave a history of having had a severe, persistent cold in November, 1933, followed by a productive cough, loss of weight, and strength. He entered the U. S. Marine Hospital in Baltimore in February, 1934, at which time a diagnosis of pulmonary tuberculosis was made. The physical and x-ray findings showed a large cavity at the level of the second inter-space on the left. Artificial pneumothorax was started in November, 1934. The patient left the hospital of Baltimore in December and entered the U. S. Marine Hospital in Norfolk on December 29, 1934. At that time the x-ray and physical findings showed that the right lung was apparently negative while there was partial collapse of the left lung, complete collapse being prevented by two large band adhesions over the site of the cavity. Artificial pneumothorax was continued and the patient was transferred from Norfolk to the U. S. Marine Hospital, Fort Stanton, New Mexico, on February 24, 1935. The x-ray and physical examinations at this hospital were the same as those found in Norfolk, except a small amount of fluid had formed in the left pleural cavity while the patient was enroute to this hospital. This gradually increased until it had to be aspirated on several occasions, the first time being on March 20, 1935, when 550 c.c. of clear straw-colored fluid were removed. The sputum was positive on repeated examinations.

An intra-pleural pneumolysis left was performed on April 19, 1935. The thorascopic examination showed that two adhesions (2 cm. in diameter by 3 cm. long, and 1 cm. in diameter by 5 cm. respectively) were preventing the lung from complete collapse, these adhesions being attached from the lower part of the upper lobe to the mid-axillary region. A small amount of free fluid was in the pleural cavity. Both of these adhesions were under considerable tension, the severed ends of which were seen to separate approximately four cm. Following this operation there was marked improvement in the patient's general condition. The temperature range at present is between 36.4 and 37.1 degrees C., as compared with 36 and 38.2 degrees before the operation. The sputum examination was positive before the operation; two examinations since the operation were negative. X-ray examination made on April 30, 1935, showed complete collapse of the left lung with closure of the cavity. There is still a small amount of free fluid in the pleural cavity. The patient has gained five pounds since the pneumolysis. At present the prognosis of this case seems favorable, made possible by the intra-pleural pneumolysis.

Summary

1. It is not advisable to continue an unsuccessful pneumothorax case over a prolonged period of time.

2. It is often possible to convert an unsuccessful pneumothorax case into a successful one by severing the adhesions.

3. The results obtained by intra-pleural pneumolysis at this hospital have been gratifying and this procedure should be in more general use among those treating tuberculosis.

REFERENCES

1. Jacobaeus, H. C.: The Cauterization of Adhesions in Artificial Pneumothorax Treatment of PulmonaryTuberculosis, Tr. Natl. Tbc. Assoc., 97, 1926.
2. Matson, R. C.: Severing Adhesions in Artificial Pneumothorax by Electrosurgical Methods, Surg. Gynec. and Obst. 58: 619-629 March '34.
3. Peters, L. S., and Cornish, P. G., Jr.: Intrapleural Pneumolysis by Jacobaeus, Unverricht Method, Med. Jour. and Rec. 132: 265-269 Sept. 17, 1930.
4. Unverricht, .: Tecknik u. Methodik der Thorakoskopie, Leipzig, 1925, F. C. W. Vogel, p. 24.

RADIATION THERAPY IN VARIOUS SURFACE LESIONS

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(Presented before the New Mexico State Medical Society at its Fifty-third Annual Session, held at Albuquerque, N. M., May 23-25, 1935.)

Radiation therapy of neoplastic disease of the body surface is interesting, the clinical material is abundant, and the end results are generally, but not always, satisfactory. Much has been added to our knowledge of clinical radiology in

recent years. From Ewing we have learned cell cytology in its reactions to the energy of radiation. McCarthy and Broders have classified and graded malignant cells. Physicists have built good x-ray tubes, and electrical engineers have perfected x-ray apparatus both pleasing to the eye and reliable—but exceedingly expensive. Radium has been placed in better containers, both for external and interstitial use, and the radiologist is gradually changing from technician to clinician. There is no longer any excuse for guess work or slipshod methods of dosage and technical procedure.

It is difficult to summarize in a few words the limitations of radiation therapy for the multitude of skin and surface lesions which befall mankind. The ordinary gamut of acute skin diseases—including anaphylactic, systemic, and classical organic eruptions—belong to the dermatologist and the general practitioner. So do the various surface manifestations of lues, although when these become chronic the diagnostic acumen of all hands may need to be called to duty. The same may be said of lumps and other tuberculides. These, again, may be found associated with lues or epithelioma; and altogether too frequently all three of these fundamentally systemic maladies may form an unholy trinity which seems to resist the combined forces of scientific medicine and surgery.

We have made the error of treating by radiation certain chronic sores and ulcerating lesions which have the clinical appearance of neoplastic growths, when the pathology would have been discerned by a Wassermann or Kahn test. This demonstrates acutely the necessity for a radiologist's being thoroughly grounded in patohlogy and diagnosis before venturing forth as a clinical radiologist.

Experience has taught that certain localized acute and chronci infections are amenable to radiation, principally acne vulgaris, furunculosis and carbuncles, the latter being particularly responsive to such treatment. Then there are the scaly dermatoses of which variegated eczema is typical, and simple warts, moles, nevi and angiomata. There is also a certain group of lupus vulgares and tuberculous adenopathies which are more responsive to radiation than to either surgery or drug therapy. However, the big field for our efforts is that of superficial malignancies. Here, for a great number of years, x-rays and radium have proved their superiority over any other form of treatment, and to this work we shall briefly devote our efforts for the allotted time.

The most common local malignancy met with is the basal cell epithelioma, usually prevalent about the head and face, and not common before the age of 40. No age is exempt, although skin approaching senility is more prone to take on malignant degeneration. In all such cases we expect good results in 90 to 95 per cent of cases treated. The squamous type of cell is more radiation-resistant and the recovery rate will probably not reach above 60 per cent. We have referred only to primary lesions, large and small, and not to postoperative recurrences where tissue destruction has been considerable, or where metastases have supervened.

For lesions, such as keloids, pigmented or melanotic moles, plantar warts, hyperkeratoses, papillomata, mixed sarcomas, angiomas, etc., radiation is in the foreground, if not always the choice of treatment as it gives success in 60 to 70 per cent of the cases. (Malignant melanomata, being radiation-resistant, are not included.)

There must be an established diagnosis and a carefully planned and adequately executed treatment regime. It has often been stated that the mere possession of an x-ray treatment machine and a certain amount of radium does not necessarily imply that the owner thereof is qualified to practice therapeutic radiology. Today, however, we are glad to state that this situation is rapidly changing and that the great majority of radiologists are qualified to practice their specialty. There is now in function the American National Board of Radiology that is actively engaged with the examination of practitioners in that specialty, and it is a pleasure to note that a surprisingly large number have been certified in the various divisions of roentgen diagnosis, and therapy, and radium therapy.

Experience has demonstrated that no single agent can be expected to serve effectively in all patients. Many lesions respond readily to radium or to x-rays alone. Others are more easily subjugated by a combination of the two, and in certain cases it will be found advantageous to also employ electrical surgery, eith-

er the radiotome or the coagulation needle. For the purpose of illustration we have selected a few of the ordinary run of cases in an attempt to demonstrate our conception of a proper treatment.

1. X-rays alone: 100 KV. for superficial lesions; 200 KV. for local recurrences and superficial metastases; 550 KV. for deep or remote metastases.

2. Radium alone: External radium applicators; interstitial radium implantation with seeds and element needles; and tele radium.

3. Electrodesiccation—Electrocoagulation—The Radiotome.

4. Any combination of the agents and modalities named.

Naturally the proper selection of methods will depend entirely upon the location of the lesion, its pathology, size, characteristics, area of involvement, and the tissues affected.

THE GENERAL ASPECTS OF SURGERY ON THE LARGE INTESTINES

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(Read at the meeting of the Graham County Medical Society, Safford, Arizona, July 2, 1935.)

Surgeons who frequently have to cope with lesions of the colon and rectum seem generally agreed that it is impossible to apply a standard set of procedures for operations in this field. A number of factors obtain which must determine the type of operation to be utilized if an optimal result is to be realized. With this paper we review briefly some of the pertinent considerations of surgery of the large intestine, and stress the factors which appear to be responsible for the more hopeful outlook in recent years from this type of surgery.

Anatomy and Physiology: Since standardization of operations in this field has not seemed feasible, it is obviously essential for the surgeon confronted with a lesion of the colon to be familiar with the general anatomic and physiologic aspects of the large intestine.

Anatomically and physiologically, as well as developmentally, the colon is divided into two halves, the right and the left. The distinct functions of the two segments and the usual differences in the types of malignant growth occurring in them are of practical significance. The right half of the colon is the absorbing segment, and in this is comparable to the small bowel with which it has a common embryologic origin, namely, the midgut. The left half of the colon is a development of the hindgut and its function is that of storage and evacuation. A distinct blood supply likewise exists, the superior mesenteric artery serving the right, or absorptive segment, and the inferior mesenteric artery nourishing the distal half.

The results of total colectomy indicate that the human can live without a colon. However, as Bargen has recently remarked, this does not minimize the gravity of surgery on the large intestine, and as he has stated further, the apparently conflicting factors only emphasize the need for further study of the physiology of the colon.

The more common lesions encountered at operation on the large intestine are carcinoma, diverticulum and diverticulitis, and tuberculosis. Of these by far the most important is carcinoma.

Azeman and others, in a series of 70,000 necropsies, found that 5,796 deaths had occurred from carcinoma in general, and that in almost a tenth of these cases the carcinoma was in the large intestine; in 35 cases the carcinoma was in the cecum, in 83 in the sigmoid, in 262 in the rectum, and in 131 in other portions of the large intestine. Thus 345 out of 511 carcinomas of the large intestine, or more than three-fifths, occurred in the rectosigmoid region. Other reports are roughly in accord with these figures.

Carcinoma of the colon may occur at any age, although it is most frequent in the fifth and sixth decades. The condition apparently preponderates in males. In cases at the clinic, men have been affected twice as frequently as women.

Available data suggest that diverticulum of the colon occurs in about five per cent of cases, although, of course, lower and higher figures have been reported. Diverticulitis seems to develop in about 15 per cent of these cases. Ran-

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kin and Brown found 60 per cent of their patienst to be males. Most of the patients were more than 40 years of age. Diverticula occur with increasing frequency from the right to the left side of the colon, and are most common in the sigmoid.

Tuberculosis of the intestine most frequently involves the ileocecal region. The primary type is more frequent in children, and the secondary in adults.

Other surgical lesions of the colon and rectum which are met with less frequently include fistula, intussusception, volvulus, megacolon, rectal prolapse, stricture of the rectum, polyposis, and the whole group of infectious granulomas. Chronic ulcerative colitis, since the use of the regimen suggested by Bargen which includes serum and vaccine therapy, only rarely requires surgical treatment.

Such lesions as fibromyoma, angioma, lipoma, endothelioma, and so forth, merit mention only because of their rarity.

Symptoms: Although the scope of this paper does not permit a consideration of the symptoms of all of the lesions of the large intestine, some of the cardinal features of the more important lesions probably should be mentioned.

The symptoms of carcinoma of the large intestine vary with the site of the lesion. A good general rule, however, is to regard seriously any unusual change in the intestinal habits. Pain, when present, is often not at the site of the lesion. This is probably because of the nature of the nerve supply and variations in width of the lumen of the bowel as well as the territory in the abdomen covered (Bargen). This is particularly true of new growths in the right half of the colon. The distress accompanying a lesion in this region is usually referred to the epigastrium. It may be cramp like, aching, or pylorospastic; rarely is it obstructive. This can be understood if we recall the physiology of this part of the bowel, namely, that the stools are liquid prior to the absorption which causes the content of the bowel to be relatively solid on reaching the left half of the colon. Furthermore, growths in the right half do not tend to encircle the bowel but tend to perforation or abscess formation. When the growth is near the ileocecal valve, "mild" dyspepsia simulating chronic appendicitis is common. Owing to the friability of the growth, increased absorption seems to take place, and thus loss of weight and strength often occur before any other evidence of intestinal disease appears.

Anemia, often profound, is a common manifestation of lesions, of the right half of the colon and indeed it may be the only symptom. No adequate explanation of this phenomenon has been offered. It is not due to hemorrhage, as the anemia is at times most severe when the tumor has not bled. It is conceivable that destruction of blood results from some perverted function of the mucous membrane, with increased absorption of toxins. A palpable mass is a fairly frequent finding. Alternate constipation and diarrhea may be present, but gross blood in the stool is exceedingly rare.

Lesions of the left half of the colon present quite a different picture. The colon is narrower and fecal material is usually formed, hence symptoms of obstruction are fairly common. The obstruction is usually slowly progressive and well tolerated. In the later stages, a so-called compensatory diarrhea occurs. The latter, however, seems more likely to be incident to irritation of the intestinal wall than to the obstruction per se. Blood in the stools occurs not infrequently, and obviously the lower the lesion the more prominent is this finding.

In rectal carcinoma, bleeding is unquestionably the most prominent and pronounced symptom, being present in about 85 per cent of our cases. It is our opinion that more than this proportion of patients have lost blood by rectum, but that it has not been offered as a symptom because the patient has not been aware of it. It should be borne in mind that although tenesmus, frequent stools, and the passage of large quantities of mucus often accompany bleeding, the presence of blood in the stool may be the only sign of rectal carcinoma. Unfortunately we have seen a number of cases of rectal bleeding, in which patients were treated by hemorrhoidectomy elsewhere, when a careful digital examination would have revealed carcinoma. The presence of pain, loss of weight and strength, and anemia suggest that the growth is more than a local affair.

The most common symptom of diverticulitis is pain of some kind, and such pain is usually in the left lower quadrant. Of the patients seen at the clinic, 60 per cent presented the symptom of constipation and 11 per cent had diarrhea at some time. Blood in the stools is less

common than in cancer, while the frequency of perforation is greater in diverticulitis. Vesical symptoms are fairly common. The symptoms of diverticulitis, however, may be of long standing, and they differ from those of cancer in that they are often compatible with a relatively robust state of health for an indefinite period.

The symptoms of primary tuberculosis of the bowel (usually in the ileocecal region) roughly simulate those of cancer. The fact that this type of lesion occurs most frequently in children should suggest its presence when consistent symptoms are present. In the secondary adult type, tuberculosis is usually present elsewhere in the body.

Diagnosis: Next to a carefully taken history and physical examination, the most important aid in diagnosing lesions of the large intestine above the rectum is the roentgen ray. The use of the barium enema is most satisfactory and the double contrast method is valuable. The barium meal is dangerous in cases of obstruction, sometimes superimposing an acute intestinal obstruction on a chronic process.

The importance of digital and proctoscopic examinations cannot be overestimated. These methods of diagnosis must be utilized in every case of rectal bleeding lest we fail to recognize cases of rectal or rectosigmoidal carcinoma which may be amenable to early surgical treatment. The proctoscope will likewise reveal ulcerations of chronic ulcerative colitis as well as amebic ulcers. It is especially important to recognize the former early, since the treatment of ulcerative colitis has been placed on a more rational and favorable basis with the discovery of its probable etiologic agent, the diplostreptococcus of Bargen.

Surgical exploration may be necessary to differentiate intestinal tuberculosis and diverticulosis from carcinoma.

Preoperative Treatment—While we do not minimize the importance of surgical technic and judgment in the eradication of lesions of the colon, we do wish to emphasize the prominent part played by preoperative management in reducing in recent years the mortality in colonic surgery. For the past six years an attempt has been made at the clinic to decrease the incidence of peritonitis by a careful preoperative regimen in which both medical and surgical services co-operate. The patient is placed in the hospital for four or five days prior to operaiton. A diet high in carbohydrate and low in protein is given which obviously leaves but little residue in the bowel. This diet includes candy, fruit juices, broths, and so forth. The bowel is cleansed by mild saline laxatives and by gentle rectal irrigations. If a material degree of obstruction is present, catharsis is of course not employed. About 72 hours before operation, a vaccine prepared from colon bacilli and streptococci, which have been found to be the chief offenders in fatal cases of peritonitis, is injected intraperitoneally. The temperature of 102 to 103° F. which usually follows, subsides in from 24 to 36 hours.

This method of preoperative management has effected a reduction of 66 per cent in the incidence of fatal peritonitis at the clinic in these cases. The occasional case of fatal postoperative peritonitis which we have encountered has apparently resulted from an indeterminate type of streptococcus.

Recently, Young has reported encouraging results by the production of nonspecific peritoneal reaction following the preoperative injection of amniotic fluid into the peritoneal cavity. Our results in relatively few cases in which this was tried have not seemed favorable. However, we hesitate to be too hasty in condemning the method on the basis of the present data.

Operative Treatment: Although, as has been mentioned, individual factors in each case preclude the practicability of any definite standardization of operative procedures, certain general principles must be followed. On the whole graded procedures seem the safest. With lesions on the right side of the colon ileocolostomy with subsequent hemicolectomy have in the majority of cases given the most satisfactory results. On the other hand young patients in good general condition who have lesions of the ileocecal region which are fairly easy to remove, have been found to tolerate well a one-stage resection of the right colon and terminal portion of the ileum. A Witzel type of enterostomy may be used as a "safety valve" in such cases.

In easily mobilized portions of the colon the exteriorization type of operation seems the procedure of choice. This utilizes the most desirable features of the Mikulicz procedure and gives excellent results. We believe the chief

advantages of this method over that of Mikulicz lies in resection of a fan-shaped area of gland-bearing mesentery, and by use of the three-bladed clamp the growth may be removed at the time of the primary operation without additional risk. This procedure is not in truth an obstructive resection, as a small cautery opening is made in the proximal colonic loop, for the escape of gas, usually not later than 18 hours after operation and before the patient becomes distended. The wound is well covered by vaseline gauze and, if this protection is used, it almost invariably heals by first intention. The clamp usually falls off in six to eight days and, if not, it may be removed.

For lesions in the region of the rectum and rectosigmoid, primary colostomy, followed by perineal, resection, is the procedure that seems applicable in most cases. The combined abdominoperineal resection of Miles is used for young, apparently robust patients who have rectal carcinoma. The mortality for the combined operation in the hands of experienced surgeons is about 12 per cent, in contrast to four per cent for the two-stage operation of posterior resection of the rectum preceded by colostomy. Its use for younger individuals seems justified on the basis that it is a more radical attempt to eradicate the more malignant type of growth characteristic of this age group. We rarely utilize the combined procedure for patients more than 55 years of age because of the added risk entailed, although it is quite possible that a slightly higher percentage of cures might ensue among those who survive.

Each of the aforementioned procedures obviously requires a permanent colonic stoma. In order to avoid the necessity for such a colonic stoma, which is a horror to many patients, segmental resection of low sigmoidal lesions has been employed in a select group of cases. It is obviously not a radical procedure, but it may be employed with satisfactory results in cases in which the lesion is small, of polypoid character, and of a low grade of malignancy.

Partial or complete colectomy is indicated in cases of multiple polyposis of the colon and in the rare severe cases of chronic ulcerative colitis which fail to respond to medical regimen, including serum and vaccine prepared from the diplostreptococcus of Bargen. In these cases ileostomy is necessary. Difficulty is often experienced in controlling the looseness of the ileal evacuations, with resultant loss of body fluids; however, in time, the ileum seems to take on the function of the missing colon, namely, absorption of fluid and concentration of intestinal contents.

Postoperative Care: During the first few days after operation the patient is given, mostly under the skin or by vein, fluids in sufficient quantity to prevent dehydration. The colonic loop is punctured on the first or the third or fourth postoperative day, depending on the presence or absence of distention. We prefer to avoid rather than to treat this symptom, if possible. We have not been aware of untoward effects from permitting the patients to have sips of fluid early—one-half to one ounce every hour. This seems to add materially to the patient's comfort. The fasting stomach secretes 2,000 to 3,000 c.c. or more in a day, so it hardly seems conceivable that the addition of such small amounts of fluid would incur damage. After the passage of gas becomes free, liquids are given by mouth as tolerated. The patient is then not bothered with the intravenous or subcutaneous administration of fluids unless he is unable to maintain an adequate fluid balance on their oral administration. When full fluids are tolerated, a nonresidue diet is permitted, to be followed in a few days by a diet consisting of low residue foods. After eight to 10 days the patient may ingest foods that are included in the average normal diet.

It the patient's resistance has been lowered unduly, blood transfusion is of benefit and may be repeated as indicated. In the occasional case of ileus, hot stupes and pituitrin, eserine, or acetylcholine have proved of benefit. Transnasal suction is a valuable adjunct in keeping the stomach and duodenum empty. Intraspinal injections of procaine have at times relieved ileus. Rarely is enterostomy indicated.

The etiology of parotitis, which occurs so frequently after colonic surgery, is not understood. Sucking slices of orange and chewing gum seem to lessen its incidence. The most satisfactory treatment of the condition is the application of radium.

The prognosis following removal of lesions of the colon depends on a number of factors: The grade of the lesion and presence or absence of

metastasis, if malignant; the age and general condition of the patient; and the location and extent of the lesion and type of operative procedure performed. When lesions are benign, obviously the only risk is that of the operation, with the exception of ileostomy following colectomy in which case the physiologic disturbance is sometimes fatal. The mortality from carcinoma of the right half of the colon is less than that of the left half. In a series of 221 cases of carcinoma of the cecum reviewed recently by one of us (Dixon), 51 per cent of the patients lived five years or more following operation. The percentage of cures when the left half of the colon and the rectum are involved has ranged between 35 and 40 per cent, when the growths appeared to be completely extirpated.

The unfavorable prognostic factors are the presence of glandular involvement, distant metastasis by way of the blood stream, a locally extensive lesion with perforation, general debilitation, senility, and carcinoma of a high grade. The occurrence of highly malignant lesions in young individuals warrants a guarded prognosis. Fortunately, carcinoma of the colon and rectum is most frequently graded two, or lower, according to Broder's classification.

Summary and Conclusions: Carcinoma is the most important lesion of the colon from the surgical standpoint, although tuberculosis and diverticulitis are also of importance.

The recent reduction of 66 per cent in the incidence of fatal peritonitis following operations on the colon seems largely attributable to preoperative management. This includes the intraperitoneal use of vaccine.

The early diagnosis of cancer of the large intestine should increase the operability in these cases. The prominent symptoms of lesions of the right half of the colon are anemia, abdominal distress, and a palpable mass. Those on the left side are more often incident to obstruction and are associated with the passage of blood and mucus in the stools. The importance of digital examination in every case in which there is rectal bleeding cannot be overemphasized. Most carcinomas of the large intestine occur in the rectum and rectosigmoid and most of them bleed.

The outlook for the surgical treatment of carcinoma of the colon and rectum is far from hopeless. In the cases amenable to surgery, about 35 to 50 per cent of the patients have remained well for five years or more. Carcinoma of the right half of the colon offers the most favorable prognosis.

ACUTE CONTAGIOUS DISEASES FROM THE STANDPOINT OF THE PEDIATRICIAN

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(Read before the 53rd annual meeting of the New Mexico Medical Society, Albuquerque, May 23-25, 1935.)

Acute infectious diseases present an important problem. Certain diseases are preventable —small-pox, diphtheria, typhoid, and to a limited extent, pertussis. Other common infections may be modified by convalescent sera—measles, scarlet fever, chicken-pox and mumps. A few may be treated with sera—epidemic meningitis, and certain infections, as tetanus.

This discussion is a review of the present situation with statistics on the value of prophylactic measures in certain diseases, especially from the public health viewpoint as seen by the pediatrician. The pediatrician and the general practitioners may be valuable to the public health officers in spreading knowledge of public health measures as they are in constant touch with communicable diseases.

Prophylaxis is more important than treatment. Prevention has reduced morbidity as well as mortality of several diseases, particularly in the past 25 years.

Thomas M. Rivers[1] concludes:

"Sera from individuals convalescing from virus diseases are of doubtful value in the treatment of the infections. Such sera, however, are at times splendid prophylactic agents. Prophylaxis against small-pox, yellow fever, measles, diseases of the virus group, equals any that can be mentioned among bacterial infections."

Diphtheria is seen much less frequently than formerly due to the use of toxin anti-toxin and, more recently, toxoid and the alum precipitated toxoid. A review[2] of diphtheria in the United States for 1933 gives the New England states the lowest mortality with the Mid-Atlantic states a close second. In New York the rate was 1.2 per 100,000, a remarkable figure. Salt Lake City had no death from diphtheria in 1933—nor from typhoid fever. Chi-

cage had a rate of 0.2 per 100,000. The following table from the same journal shows the Pacific Coast situation: Seattle, none; Spokane, none; Tacoma, 0.9; Portland, 1.0; Oakland, 0.7; San Francisco, 1.2; Denver, 2.0; Los Angeles, 3.7; and San Diego, 4.0. The Mountain States had a low average. The Cities with a high rate were: Atlanta, Georgia, 12.0; Dallas, Texas, 12.0; and Lowell, Mass, 12.0. New Mexico had, in 1933, 41 deaths with a population of 416,690, or about 10 plus per 100,000.

B. B. Bagby[3] says:

"The number of deaths in a community corresponds closely to the per cent of school children immunized."

In New York City, up to 1895, the average death rate for diphtheria was 150 per 100,000 and in some years as high as 280. In 1930 the rate was 2.8. Schick, in 1908, first reported his test for diphtheria susceptibles. Park in New York, first started using toxin anti-toxin in 1917 and used it on a wholesale scale in 1920. The saving, by prevention over the cost of treatment of diphtheria, is well illustrated by the figures from New York City where in 1931 they saved $280,000.00 as compared to 1927.

The Metropolitan Life Insurance Company has spent $100,000.00 annually for advertisements urging prophylaxis against small-pox and diphtheria—because it pays.

The age of greatest susceptibility is between the sixth month and 12th year of life. The maximum period is about the fourth year or in the pre-school age period.

The choice of material for prophylaxis is diphtheria toxoid which is free of protein and seems to confer a lasting immunity. This is used for those under six years of age, while toxin anti-toxin is used for older children and adults. It seems the toxoid gives more local and constitutional reactions in those over six years which the T. A. T. does not.

The dose is one c.c. of the toxoid intramuscularly every two weeks for at least two doses —better three, which give a higher immunity in a shorter time. The toxoid confers immunity in about ½ the time required by T. A. T. as shown by repeated use of the Schick Test. With the T. A. T. there is a slight danger of sensitizing the patient to the foreign protein. The use of the toxoid dose away with this danger. In the older persons the danger of serum sensitization is so slight, as compared to the danger of the disease, that one can safely take the chance. Personally, we have seen only one case that was sensitive to the serum in the T. A. T. and got severe reactions from each of the three doses. We have never seen a case who had had the T. A. T. and later a serum who had an anaphylactic reaction.

The time for the Schick test is 90 days after the last dose of the toxoid or T. A. T. The Schick test is read one week after it is put on, as the pseudoreaction of the protein is then past. It has been observed that dark complectioned persons react with a darker stain than do blonde persons, and the reactions last longer with more of the bran like desquamation.

The duration of diphtheria immunity is supposed to be for life, but a certain percentage lose their immunity after a period of about five years.

A single dose of alum precipitated toxoid has been used and reports show that immunity is conferred within two to seven weeks. The advantages are the single dose and the high per cent of immunes reported—even as high as 100 per cent. Disadvantages are cost, formation of indurated areas which take three to four weeks to absorb, sterile abscesses and occasionally high temperatures for several days.

These difficulties undoubtedly will be removed as the material is perfected. Health departments have used this material for such a short time that it is unknown how long the immunity will last but Walker reported on a series of cases in Alabama and stated that they had had immunity for over two years.

The use of Lowenstein ointment for immunization has proven disappointing as only about 50 per cent obtain immunity and for only a short time.

Treatment of diphtheria is by antitoxin. The earlier the diagnosis and administration of serum, the better the results, provided sufficient serum has been given to neutralize the circulating toxins. We have for several years arbitrarily used a minimum of 20,000 units preferably intramuscularly or intraperitoneally. We do not use the intravenous method as there is too much reaction in many cases, some of them alarming; there may even be death. There is always danger from the intraperitoneal injection of serum, but far less than by intravenous; the absorption is quicker than by intramuscu-

lar injection and in serious cases there is a prompt response. Subcutaneous injections of the serum are too slow. It has been proven that larger doses of serum do not do harm, but where small doses give the necessary response there is no need to waste money. The amount necessary depends upon the response. We use the same dosage regardless of the age. If there is not a definite response in at least 24 hours we repeat the dose. The concentrated serum does away with objectionable bulk in the unconcentrated.

The allergic case may need epinephrin to relieve reactions. The administration of atropin one-half hour prior to the injection of serum has been advocated and used by many. Whether it does any good is debatable but it does not seem to do harm.

There is an occasional Schick negative case with a positive throat culture which may have a membrane due to his being merely a carrier. If there is a membrane, give antitoxin the same as though the patient had never had a nega-Schick or never had had the T. A. T. The Schick test might have been faulty or the material not standard due to age or too weak a dilution or a loss of potency from faulty care. In such instances, it is impossible to say whether there would or would not have been a negative test if other material had been used.

As to local treatment of diphtheria cases, we use nothing but oral hygiene with normal salt solution and dental care. There are many for and against the continuous use of local antiseptics. Many different substances have been used, and the question always comes up whether the treatment does not in some cases keep the throat so irritated as to make an ideal culture medium. A diphtheria carrier with large tonsils should have them removed—to get a negative culture.

An attack of diphtheria does not confer immunity against another attack.

Scarlet Fever: The following is based on a round table discussion at New Orleans by members of the Acerican Academy of Pediatrics'. The conclusions are given with comments on certain phases.

The **Dick test** is used to determine the susceptibility of an individual to scarlet fever. The absolute specificity is in doubt as some negative Dicks contract scarlet and also some who have had scarlet have a positive Dick test. Some will have a negative Dick test at the height of scarlet fever rash when theoretically the test should be positive.

The strain of streptococci that causes scarlet one year may not be the same another year. This may account for the difference in the Dick reactions as the test materials may not be the same as that from which the patients are suffering.

Too much antisepsis in cleansing the skin will destroy the minute amount of toxin of the Dick test, also, moisture of condensation in a syringe or the alcohol with which it was sterilized, as well as the needle, may cause a negative test due to the toxin destruction. All syringes and needles should be dry sterilized.

Schultz Charlton blanching test in scarlet fever, using a commercial serum, is of no value as usually the reactions are negative. To get a positive reaction, convalescent serum must be used. A blanching or positive test is significant but a negative test does not rule out scarlet fever. In reading the Schultz Charlton test, stand at a distance rather than close up.

The immunization against scarlet fever is by the Dick toxin put out under the authority of the scarlet fever commission. There is no scarlet fever toxoid. Age is no barrier to local and constitutional reactions. Some react so severely to the toxin as to make one hesitate to recommend its universal use. If a complete course is given and there results a negative Dick test, probably the patient is immune.

Local and constitutional reactions vary from mild to severe.

The conference concludes:

"We do not feel that the procedure should be adopted as a Public Health measure since further work will have to be done to create a more inocuous product."

The immunization may protect a person from the rash but not against his harboring streptococci in his throat.

"Because so few people contract scarlet fever anyway unless directly and intimately exposed, because even then the contagious index is low, because of the fact that the therapeutic sera sensitize to horse serum and finally because we do not feel that there has been sufficient data of a conclusive nature to prove that there is protection established by the injection of scarlet fever anti-toxin, we feel that the prophylactic use of scarlet fever anti-toxin is not to be recommended. If passive immunization has to be employed, we feel that it should be with convalescent scarlet fever serum."

"We think that the active immunization is a valuable procedure but is limited in its general application because of the marked symptoms that accompany the procedure. Because of this, we feel that it should be used only to immunize individuals

who are intimately exposed to the disease. We believe that passive immunization with the use of scarlet fever anti-toxins in susceptibles is a procedure not yet justified either from the evidence in the literature or from our own experience and finally it is not justified since it may sensitize individuals to horse serum."

"It is common opinion, and it is our experience likewise, that there are more reactions after the injection of scarlet fever anti-toxin than there are after injections of any other type of serum. Just why this is so, we do not know."

"Admitting all the advantages that various individuals claim, we still do not feel that there is reason for injecting every patient with serum. The evidence obtained from the literature does not warrant concluding that scarlet fever anti-toxin has proved of 'inestimable value' in the treatment of this disease and we would not recommend it in the ordinary mild or moderately severely ill case. If given at all, it would only be to the strictly toxic patient in the hope that it might do some good . . . even here convalescent scarlet fever serum, a homologous serum, accomplishes more beneficial results."

Even in the case of exposed individuals, it is not recommended to give the doses for active immunizaiton because they might be given with the patients in the incubation period of the disease which might be aggravated.

As to throat cultures, the consensus of opinion is that we can not use culture methods as a means of isolation or discharge of a patient from quarantine.

The immunization of children against scarlet fever by applying one c.c. of toxin upon the nasal mucous membrane once a week for five doses is being tried out by some workers. They have been getting a high degree of immunity with very slight local and constitutional reactions. The dosage is usually twice the average skin test dose'. Children rarely have reinfection.

Small-Pox: The relation of small-pox morbidity in those states with compulsory vaccination laws is well summarized by Woodward'. Over the ten year period of 1919 to 1928: 10 states with compulsory vaccination—32¼ million pop.—had 6.6 per 100,000; six states with local option—18 million—had 51.3 per 100,000; 29 states no vac. laws—60 million—66.7 per 100,000; and four states with compulsory vac. prohibited by law— million—115.2 per 100,000. For the above 10 year period there were 35,532 cases of small-pox or a rate of 78.2 per 100,000 population.

In the states with compulsory vaccination the cases ran from 1.0 per 100,000 population to 37.4 or an average of 6.6 per 100,000. This speaks for itself. There is no need to discuss this valuable measure to prevent one of the most serious and disfiguring diseases.

As to the technique of immunization we use the multiple puncture method while others use the burr method. The intradermal method has not received favorable reception. The skin is cleansed with ether or acetone, or in some cases only soap and water and thoroughly dried. After the material is placed and the puncture done, wait a few minutes for absorption then cover with sterile gauze.

The gauze is removed the next day and no dressing applied until the vaccination starts to take. Then have the mother wipe the lesion daily with alcohol and cover with dry sterile gauze. If any gauze sticks remove it gently with alcohol. This allows the wound to keep a dry scab and when the scab falls off there is only a small pit well epithelized. No large dressings or impervious coverings are allowed as these macerate the tissues and allow infection. The U. S. P. H. authorities recommend no dressing. We find children tend to scratch the wound unless a light covering is used. The wiping with alcohol, however, keeps the wound so there is little itching.

In the treatment of small-pox we recommend open air treatment and mild antiseptics, taking particular care of the eyes. The air treatment seems to prevent deep infections and less itching and pocking.

Poliomyelitis is present in all communities to a greater or lesser extent. Usually it is endemic but occasionally is epidemic. Certain geographical areas seem to be more predisposed to this disease than are others. Strangely it is predominant along the large bodies of water rather than the inland areas and more in the temperate than in the tropical regions. It is essentially a disease of childhood although it occurs in adults. There are updoubtedly many more cases of the abortive type than of the paralytic or meningitic type. Unless one is alert in doing physical examinations the occasional sporadic case may escape detection until muscle weakness or paralysis develops. The period of incubation is seven to 10 days and the onset is usually ushered in with headache, more or less sore throat, stiffness of the neck and possibly of the back, vomiting, usually constipation, and on checking the muscle reflexes there is usually a definite diminution of the deep reflexes. During an epidemic it is

not always necessary to do a lumbar puncture to confirm the diagnosis but with the sporadic case this may be necessary. In the spinal fluid, if there is an increase of cells, particularly lymphocytes over 10 to the cm. together with the aforementioned clinical findings, the diagnosis is fairly conclusive.

Treatment with pooled convalescent human blood serum is recommended—used intravenously and intramuscularly in doses of from 30 to 60 c.c., repeated in 12 to 24 hours if no lessening of clinical symptoms.

The value of serum is questioned by many; the use of the serum after the paralysis has set in is not considered of value. Regardless of the arguments for or against the use of the serum, it is recommended where available. If it is not available, it may be practical to give 60 to 100 c.c. of whole blood intramuscularly from a person who is known to be free of syphilis; typing is not necessary. The use of direct blood transfusions from a known poliomyelitis convalescent into a patient after proper grouping has been recommended and used by some authorities with considerable success but this requires suitable hospital and laboratory facilitise.

Pooled adult serum, regardless of whether the persons have had poliomyelitis or not, where the donors are Wassermann free, has been recommended and extensively used. It is questionable whether the convalescent serum does any more good than the ordinary pooled serum but so far these remedies are the only ones that we have that are of value.

The use of animal serum has not been proven. Goat's serum, from animals immunized by the proper technique, has been used with apparent success in a limited number of cases but this work is purely experimental. Its use is not urged above that of the human convalescent serum. The other types of poliomyelitis serum made from immunizing animals have not been proven though they have been used by many.

It is to be remembered that many poliomyelitis cases recover regardless of treatment with a minimum of muscle weakness or paralysis.

Orthopedic care is essential in all cases with any signs of muscle weakness. Muscle checks on all cases of known and suspected poliomyelitis should be done after the individual has convalesced.

The period of quarantine should be at least three weeks and all contacts should be kept in quarantine for the same length of time.

The patients should keep out of swimming pools, and should not use aqueous or oily sprays in the nose to wash out the protective mucus from the nose.

As to prophylactic use of vaccine, the following by Maurice Brodie[1]:

"However, the incidence of the disease is so low and the preparation of the vaccine so expensive that its application is limited. It has been found that not only convalescents, but also many normal children, even in the susceptible age group, have antiviral substances in their blood. Vaccination should be limited to those without any antibody."

Measles: In 1918 Nicolle and Conseil recommended convalescent serum to prevent and modify this disease. Serum must be given in the first five days of the incubation period for prevention and not later than the seventh day for attenuation of the disease. The dose recommended is five to eight c.c. The difficulty in obtaining serum led to the use of whole adult blood, preferably of one who had had the disease. One or other parent usually is available. It is not necessary to group the blood as it is injected intramuscularly (first done by Reitschel in 1921). We use the citrated whole blood and give one injection any time up to the seventh day after exposure. Some advocate 30 c.c. of the whole blood but we have had as good results with 20 c.c. Convalescent serum is best from a patient who has been afebrile 10 to 30 days. Placental extract has been used to prevent and modify measles. The work at present is purely experimental. Whether or not the placenta of animals can be used is unknown.

Second infections with measles do not occur; so-called second and third attacks are usually something else.

Epidemic Cerebrospinal Meningitis, which formerly had a mortality of 85 per cent, has been brought under control since Flexner introduced the use of antimeningococcic serum many years ago. The technique of treatment has advanced almost to a routine. The following is the technique that is recommended and is fairly standard: Do a lumbar puncture; if the fluid is cloudy, even if not examined at once, inject the warmed antimeningococcic serum by the gravity method, the dose being a trifle less than what was removed; study fluid for the type of organisms; repeat lumbar puncture every 24 hours; inject serum daily so long as

organisms are in smears or cultures; two successive smears or cultures free is evidence of sufficient serum; from four doses up, is the rule—even to 20; if the patient is toxic and there is a rash, it may be wise to inject serum intravenously or intramuscularly (we frequently use the intraperitoneal route in preference to the intravenous); cisternal or ventricular punctures are not recommended for the average man unless he is acquainted with the proper technique; if results from a serum are not satisfactory, use serum of another firm (we prefer a polyvalent serum).

In a recent number of the J.A.M.A.** Hoyne of Chicago recommends the use of a meningococcic antitoxin by the process of Ferry in the treatment of meningitis and claims an unusually low mortality over a period of two years in the Cook County Hospital. The work, of course, is too new to pass judgment upon but should be watched.

In our local General Hospital the method of choice is the administration of one part of human blood serum to 10 parts of antimeningococcic serum—with a low mortality.

Lumbar puncture may be done every eight, 12, or 24 hours depending upon the severity of the case, intracranial pressure and if it seems necessary administer serum that often.

Inasmuch as many of the cases have a general systemic infection with the meningococcus it may be wise to give an intramuscular or intraperitoneal injection, but usually only once.

These cases are best treated in an institution where it is possible to have the use of a laboratory to test the slides and cultures daily.

There is no prophylaxis except isolation of the patients.

Typhoid Fever: For prophylaxis three weekly injections of the triple vaccine of typhoid, para-A and B are recommended. For infants and very young children, the first dose is usually one-half to two-thirds the adult dose, and the next two doses depend upon the reaction from the first. The immunity is supposed to be for three years but has been found to last six years according to Sippy in the San Joaquin district of California.

Don't starve the typhoid patient.

The use of a bacteriophage in the treatment of typhoid is recommended at the Highland Hospital in Oakland. We can not recommend the intravenous administration as they do, but think it might be of value possibly if given subcutaneously. Oral use is safe.

Prophylaxis in the form of hygiene and sanitation, care in handling milk and other foods and care in water supply is more important than vaccine. Educate the public on the mode of transmission by "food, fingers and flies" as was taught years ago.

Watch out for the typhoid carrier, especially in food handlers, such as, cooks and dairymen.

Pertussis: The use of convalescent serum or whole blood in modifying the disease has been recommended but we have had no experience with either.

Frawley of Fresno recently used the Kreuger undenatured bacterial antigen for prophylaxis, giving a series of seven doses—a total of 13 c.c.—over a period of two weeks and claims to have had satisfactory results in obtaining a high percentage of immunes in children later exposed to pertussis. He has used the same material for treatment and claims satisfactory results. For the past seven years Sauer has used his bacterial vaccine giving two c.c. doses weekly for three or four weeks and has had a high percentage of immunes among children later exposed. He claims that the immunized among his earlier series have gone through several years of exposure without contracting the disease. The disadvantage of his method is merely the local reaction and occasionally slight systemic reactions. With the Frawley method local and systemic reactions are supposed to be practically nil.

In the treatment of pertussis either the Frawley material or the old standard preparation of the concentrated bacillus of Bordet-Gengou, in the dosage of 0.5 c.c., 0.1 c.c., and 1.5 c.c. every two or three days may be used, accompanied by quartz light treatments. Some men report excellent results in a shortening of the duration of the disease and modification of the severity of the paroxysms. Medicinal treatment has been varied. Numerous sedatives have been recommended but the old Osler statement of "six weeks and a bottle of paregoric" is as true today as when uttered. The majority of the sedatives contain an opiate but recently a gold tribromide has been recommended and in some instances proven efficacious. Ether in oil by rectum has, also, proven valuable.

The best way to handle these children is to immunize by either the Sauer or the Frawley

method and urge upon parents to keep their children who are suffering from the disease away from those who have not had it, particularly during the first six weeks of the coughing. The plate method of testing has shown that after six weeks the organism is usually absent. Some children will cough for weeks after all danger of infection is past.

One attack usually immunizes for life but occasionally a mother or grandmother will contract the disease although they had it when young.

Chicken-Pox (Varicella): Lewis and Barenberg[10] report that 30 c.c. of whole blood from a convalescent from chicken-pox injected into an exposed infant will modify the disease while 40 c.c. will apparently immunize, providing the blood is injected before the end of the first week of exposure. Older children require larger doses. We have no personal experience with this. The disease is usually so mild that no prophylaxis seems necessary, let alone the treatment with blood.

Chicken-pox does not re-occur and vaccination against small-pox does not immunize against chicken-pox.

The complications that may occur are nephritis and occasionally encephalitis.

Mumps: A. F. Hess in 1915 first used mumps convalescent serum—three to four c.c. intramuscularly—with good results. He had no cases of the disease in those protected though exposed.

Barenberg in 1931 used 12 c.c. of whole blood or five c.c. of the serum with good results. Where the protected child developed the disease it was milder than usual. For complete protection Barenberg and Lewis recommend 12 to 15 c.c. of convalescent serum. Their experience with whole blood was not satisfactory, they think 30 c.c. of whole blood would be necessary to get results.

An attack, especially of bilateral mumps, gives life immunity.

In Conclusion: Study all ill children stripped. Examine all eruptions carefully. When in doubt call for consultation and your health officer should be the man on whom to depend.

We have not discussed German measles, influenza or encephalitis, as there is no prophylaxis for these and they require only symptomatic treatment.

Prevent by proper prophylaxis all preventable conditions; prophylaxis is cheaper in every way than treatment.

BIBLIOGRAPHY

1. Rivers, Thos. M.: Virus in relation to practice of medicine. Penn. Med. Jour. 36: 489-495 April 1933.
2. Diphtheria Mortality in large cities of the United States 1933. J.A.M.A. 102: 1758-1760 May 26, 1934.
3. Bagby, M. M.: Deaths from Diphtheria directly proportional to percentage of immunization. Virg. Med. Monthly, 61: 108-110 May 1934.
4. Round Table Conference on Scarlet Fever. Jour. Ped. 775-783 Dec. 1932.
5. Freedman, E., Esserman, A., and Black, M. H.: Active immunization against Scarlet Fever by nasal route. Jour. Ped. 5: 504-510 Oct. 1934.
6. Woodward, S. B., and Femester, R. F.: Relation of Small-pox morbidity to vaccination laws. New Eng. Jour. Med. 208: 317-318 Feb. 1933.
Brodie, Maurice, Goldberg, S. A., and Stanley, Phyllis: Transmission of virus of Poliomyelitis to mice. Science, 81: 319-320 Mar. 29, 1935.
8. Hoyne, A. L.: Meningococcic Meningitis. J. A. M. A. 104: 980-983 Mar. 23, 1935.
9. Ferry, N .S. and Steele, A. H.: Active immunization with Meningococcic Toxin. J.A.M.A. 104: 983-984 Mar. 23, 1935.
10. Lewis, J. M. and Barenberg, L. H.: Use of Convalescent Serum in Treatment of Measles, Chicken-Pox, Mumps and Whooping Cough including Prophylactic Values of Parental Blood. N. Y. State Jour. Med. 33: 97-99 Jan. 15, 1933.

AVULSION OF THE TIBIAL TUBERCLE

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(Read before the New Mexico Medical Society at its Fifty-third Annual Session, held at Albuquerque, N. M., May 23-25, 1935.)

Fracture with complete avulsion of the tibial tubercle is a rare condition and reported cases are infrequent in the literature. The condition is most frequent in stout athletic boys. Avulsion may be brought about by direct or indirect violence usually from a fall where the weight falls on the lower extermity with violent contraction of the quadriceps muscle. This was what happened apparently in the case reported in this article.

The history and physical signs should aid the examiner in making a diagnosis. The x-ray will give positive proof, especially if there is marked avulsion. Disability is limited to extension which can be done only upon extreme exertion, the non-affected vasti muscle fibres being brought into use. It is well to x-ray both knees, especially where the separation of the lower and anterior lip of the epiphysis or the

tibial tubercle is slight, in order to make comparison.

The tibial tubercle develops from a tongue-like process of the lower and anterior portion of the epiphysis descending over the diaphysis. Sometimes an independent center for the tubercle appears about the 11th or 12th year, rapidly joining with the already well-developed mass of the rest of the epiphysis. Complete fusion between the proximal epiphysis and the shaft does not take place until the 20th to 24th year[1]. During the period of adolescence the tubercle is separated from the shaft by a layer of cartilage[2]. The ultimate insertion of the quadriceps femoris muscle is into the tubercle of the tibia by means of the patella tendon. The vasti muscles in addition are connected with the collateral ligaments of the patella, attached to the condyles of the tibia.

Fig. 1. X-ray taken on day of accident showing avulsion of tibial tubercle.

Partial separation or a sprain of the tibial tubercle is a distinct pathological condition and should not be confused with the cases of complete avulsion. This condition was first described by Osgood[3] and Schlatter[4] in 1903 and has since been known as Osgood-Schlatter's disease. It usually occurs in adolescence between the ages of 10 and 15 and most frequently in muscular athletic boys. The separation is usually of gradual onset and is characterized by pain, tenderness and swelling in the region of the tibial tubercle. Medical attention may not be sought for some time as the separation is not complete. An explanation for this condition may be found in the powerful pull of the quadriceps muscle on the tubercle at an age when it is undeveloped and insecurely fastened to the tibial shaft, being separated from it, by an interposing plate of cartilage so that any excessive strain that might be caused by sudden exertion or violent contraction of the well-developed quadriceps of a young athlete, might readily avulse the tibial tubercle or pry loose the epiphysis with its beak.

Treatment: If there is not much retraction of the tibial tubercle as shown by x-ray examination and if it can be palpated and replaced, strapping and immobilization with the leg in an extended posiiton may effect a complete cure. The prognosis in these cases is good and treatment takes from six weeks to six months. If the retraction of the tubercle is great (as is the case reported in this paper) and there is considerable swelling, it is the opinion of most writers that these cases should be operated.

The following case is reported because of the rarity with which these cases are seen:

White male, 19, laborer in C.C.C. camp. The patient had always been in good health. He is muscular and well-developed. His weight is 135 pounds and height is 67 inches. The general physical examination showed nothing of interest aside from the injury to the right knee.

At noon, on September 13, 1934, the patient was getting out of the back of a truck. He stepped on the fender, slipped and fell to the ground, landing on his right foot with the leg flexed. His leg gave way and he fell to the ground and as he was not able to use it he was brought to the hospital at Fort Stanton, New Mexico.

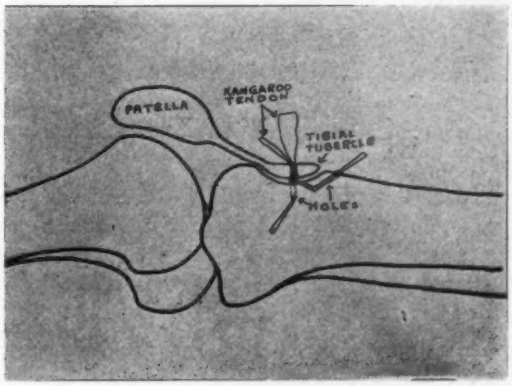

Fig. 2. Diagram showing the tibial tubercle after it had been replaced in position. The Kangaroo tendon is shown in the holes in the tibia and the tibial tubercle ready to be tied.

The patient complained of severe pain in his

right knee intensified by passive motion. He was unable to extend the leg. There was no shortening, neither was there any inward or outward rotation of the leg. The patella was displaced upwards (Fig. 1) with considerable swelling and tenderness over the knee.

The operation was deferred 15 days on account of the marked swelling. During this time the patient ran a daily temperature from 37.4 to 38.1 C., receding almost to normal prior to the operation. An operation was performed on September 28, 1934 under ether. A U-shaped incision was made, the lower border of which was over the tibia just below the site from which the tubercle was torn loose. There was free fluid and old blood in the soft tissues. No pus was in the wound. The hole in the tibia at the site of the fracture, and the posterior surface of the tibial tubercle was curetted. The tubercle was placed in position and held by interrupted sutures of kangaroo tendon, taken through the soft tissues of the tubercle and the tibia. With the leg in extension a posterior plaster splint was applied to the leg and thigh. The leg was elevated in the bed to relax the quadriceps muscle. X-ray pictures taken in October—the last one on October 20—showed bony union between the tubercle and the tibia. His progress was satisfactory. In the latter part of November and the early part of December, he was walking with the aid of crutches and was able to extend the leg. Passive motion on November 13 gave about 20 degrees flexion. Treatment consisted of massage and sun baths.

Fig. 3. X-ray taken 5 months after accident, showing tibial tubercle in its normal position with bony union.

On December seven, about nine weeks after the operation, the patient slipped on a floor and injured the knee again. X-ray showed avulsion of the tibial tubercle for the second time.

A second operation was performed—under spinal anesthesia. A U-shaped incision was made in the line of the old scar. The fractured surfaces of the tibial tubercle and of the tibia were curetted. A hole was drilled through the middle of the tubercle. Two holes were drilled through the tibia into the site of the fracture. (Fig. 2) One was just below and the other just medial to the fractured site. Kangaroo tendon was brought through these two holes and then through the one hole in the tubercle. The tubercle was pulled into position and tied with the tendon (Fig. 2). A posterior splint was applied to the leg and lower thigh. The leg was then elevated to relax any pull from the quadriceps muscle on the tibial tubercle.

The position of the tubercle as shown by x-ray is now good and there is bony union between it and the tibia (Fig. 3). The patient began walking on the injured leg, with the aid of crutches, about seven weeks after the second operation. He was able to slightly extend the leg.

At time of discharge from the hospital about three and one-half months after the second operation he was able to walk unassisted. The leg then showed about 80 degrees flexion, which it is believed will be increased.

Conclusions: Complete avulsion of the tibial tubercle is rare. Operation is usually necessary.

Osgood-Schlatter's disease is most often found in adolescence in muscular athletic boys. There is a sprain or partial separation of the tibial tubercle. This condition can usually be remedied by strapping and immobilization of the leg.

REFERENCES

1. Cunningham's Text-book of Anatomy, 1913, page 250.

2. Heacock: Osgood-Schlatter's Disease, Col. Med. Dec. '24.

3. Osgood, R. B.: Lesion of the Tibial Tubercle, occurring during adolescence. Boston Med. & Surgical Journal, 114, 117 and 148; 1903.

4. Schlatter-Beitz Z., Klin. Clin, 1903.

THE MANAGEMENT OF PERITONITIS—BASED ON NEW CONCEPTIONS

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Peritonitis has been one of the feared causes of death following operations upon abdominal viscera, or following perforation or other injury of an abdominal viscus. Recent experimental studies have raised the question whether it is peritonitis, as such, that we should fear, or a toxemia in which peritonitis is only the evidence of a defensive mechanism of the peritoneum. If all the defensive mechanisms of the body are available, spilling of intestinal contents in the abdominal cavity may not be the serious affair we have been led to believe. If the defensive mechanims are not all available, such spilling, even if minute, may be the instigator which sets in motion the necessary development of a fatal toxemia associated with peritonitis. Bacteria, such as streptococci and colon bacilli, are always present in the walls of the intestine about a neoplasm which has invaded the wall of that portion of the intestine. These bacteria multiply and spread rapidly in the absence of adequate defense, and cause the real damage. If unusual dissemination of these bacteria with resulting peritoneal irritation occurs, and if adequate cellular reaction is not at hand, splinting and distention of the intestine, and retention of toxins follow. Elaboration of poisonous toxins then ensues, and if the process cannot be reversed in time, death associated with peritonitis will follow.

Herrmann, working on this problem, under Mann, in 1927, at The Mayo Clinic, produced peritonitis in rabbits and dogs, by the intraperitoneal injection of colon bacilli and streptococci. He found that the development of peritonitis depended on the presence of immunity. Peritonitis, he postulated, was a defensive reaction of the tissue; the form of immunity which determined peritonitis was a local immunity of the peritoneum. He expressed the opinion that sufficient immunity would prevent peritonitis entirely, and bacteria would be destroyed rapidly and completely in the animal which was immune. Without immunization against the prevailing bacteria, that is, streptococci and colon bacilli, peritonitis would result in death from acute sepsis, and there would be little or no peritoneal reaction. If animals, which did not receive injections of vaccine, received lethal amounts of virulent cultures of these bacteria, they all succumbed to a generalized peritoneal infection. He also found that if a vaccine, which was prepared from colon bacilli and streptococci, was injected peritoneally, operations, such as resection of the intestine could be carried out almost with impunity and without the fatality associated with peritonitis; whereas, if such operations were performed without the administration of vaccine, the mortality associated with peritonitis was high.

Men have been studying the nature and prevention of peritonitis for many years. The work of Dragstedt of Chicago, and of Burget of Portland, Oregon, while it may not have been aimed directly toward a solution of this problem, offers clues for further study. These investigators isolated loops of intestine in the dog, closing off both ends and fastening the lips to the anterior abdominal wall. The lumen of the intestine, from which such a loop was isolated, was reestablished by end-to-end anastamosis. The continuity of the focal stream was thus maintained but a portion of the intestine was isolated in such a manner that that which formed in this loop could not be evacuated by the animal. Within a short time after such a loop was emptied and following the recovery of the dog, it filled up with a dirty gray-brown material which contained innumerable bacteria. If nothing was done about this, severe toxemia developed, and the dog died. If the loop was emptied periodically by needle aspiration through the abdominal wall, complete relief of all symptoms of toxemia resulted, and the dog remained well.

With the development of toxines, associated with peritonitis the result of paralytic ileus, there is complete stasis of the intestinal content, and serious intoxication. In such a tox-

emia, all available protective mechanisms of the body will at once be called on.

Interesting experiments have been carried out in an effort to evaluate these bodily defenses. Studies of the peritoneum and the peritoneal fluid, particularly with reference to their reaction to infection and sterile foreign matter, have been most fruitful. A small amount of free fluid normally is present in the peritoneal cavities of man and of experimental animals. It has been described as a lubricant, but comparatively little attention has been given to its cellular structure until recently.

Maximow described the cells commonly found in the peritoneal fluid, but their variation in different animals and under different physiologic conditions has been studied only recently by Montgomery. He found that the number of cells in the peritoneal fluid of various animals, such as the white rat, white mouse, guinea pig, swine, dog, and horse, varied with the age of the animal. Others have observed that peritonitis is less likely to affect animals, such as white rats, in which the cellular count of the peritoneal fluid is high, than it is to affect those animals which disclose a comparatively low cellular count and which normally have a low resistance to peritonitis.

Durham, in 1897, carried out experiments with guinea pigs, for the purpose of studying the reaction of the peritoneum to infection. He summarized the findings by saying that a leukopenia in the peritoneal fluid followed immediately the injection of killed bacteria. This condition was soon followed by a polymorphonuclear leukocytosis, and the predominating cell later was found to be a macrophage (monocyte).

The observations of Durham have been substantiated by Witts, and by Morton. The latter investigator demonstrated that if a filtrate of hemolytic streptococci, which first had been rendered sterile by passage through a Berkefeld filter, was injected into the peritoneal cavity of rabbits, death invariably occurred within a few hours. If the filtrate was boiled for thirty minutes and then injected into the peritoneal cavity of rabbits, immunization against subsequent intraperitoneal infections with hemolytic streptococci invariably ensued. These experiments were repeated by using sterile solutions of dextrose, and dextrose in physiologic saline solution. Surprisingly enough, the animals also were found to be immune to subsequent intraperitoneal injections of hemolytic streptococci. A differential count of the cells of the peritoneal fluid disclosed that, at the height of immunization, the monocyte was the predominating cell and that it had replaced the polymorphonuclear leukocyte to a great extent. Morton then attempted to determine, if possible, the phagocytic action of the monocyte. It was found that the peritoneal fluid and omentum of animals, which apparently had been immunized against intraperitoneal infections, contained numerous large mononuclear cells (monocytes). The peritoneal fluid and the omentum of animals, which succumbed to the intraperitoneal injection of a bacterial filtrate, were found to contain very few monocytes, but a large number of polymorphonuclear leukocytes. Morton therefore concluded that the monocyte was definitely more phagocytic than was the polymorphonuclear leukocyte, and he also expressed the opinion that immunity to peritonitis might be established by inert substances.

Goldblatt and Steinberg were able to produce active immunization against bacillus coli peritonitis of dogs by the intraperitoneal or subcutaneous injections of killed colon bacilli. The animals remained immune to peritonitis from this organism for three months.

David, in 1927, studied experimental peritonitis of dogs. He demonstrated that colon bacilli passed directly from the peritoneum to the blood stream and to the lymphatics. If plastic peritonitis was first produced by the intraperitoneal injection of an emulsion of turpentine, colon bacilli that were injected into the peritoneal cavity could not be recovered from the blood stream or from the thoracic duct. A repetition of the experiment, following the production of a low-grade peritonitis, occasionally did show colon bacilli in the lymphatics, but rarely were organisms recovered from the blood stream. By analogy, he concluded that if death resulted from a well-developed peritonitis, its cause could not be attributed to septicemia. While this mooted question may not yet be answered, our clinical observations thus far bear out David's experimental findings, by the fact that repeated blood cultures in cases of fatal peritonitis invariably have been negative.

Rixford and Dixon, in 1934, studied the

cytology of the peritoneal fluid of man. They endeavored to determine the normal cellular structure and also the variations which occurred after the intraperitoneal administration of vaccines which were made of colon bacillus and streptococcus. The method of obtaining the fluid has been fully described in a previous publication. Suffice it to say that the normal peritoneal fluid of man contains in the neighborhood of 2300 leukocytes per cubic millimeter. About 45 per cent of these are histiocytes (monocytes); very few are eosinophils and basophils, and many are lymphocytes. After the intraperitoneal injection of vaccine, the total cell count is increased at least tenfold. At first, there is an increase in the neutrophils; later, there is a marked increase in the histiocytes (monocytes). These investigators expressed the opinion that at least a part of the protection against peritonitis, which results from the use of vaccine, was the result of nonspecific production of phagocytosis, which was caused by an increase in the number of monocytes.

Sistrunk observed early that patients who were filled, so to speak, with carbohydrates and who had empty intestines were much better risks for intestinal operations than were patients who had not been subjected to this preparation. The work of Hermann, particularly, as well as the early observations of Sistrunk, and these studies of the peritoneal cellular reaction, form the basis of our management of the patient in whom peritonitis is likely to occur.

So striking were the results of the experimental work that we decided to vaccinate patients before they were subjected to resection of the colon, in order to prevent postoperative peritonitis. Bargen has found that the organisms, which were most prevalent in the abdomens of individuals who had succumbed to peritonitis following colonic operations, were colon bacilli and streptococci. A vaccine, which has been prepared from these organisms, has been injected intraperitoneally three days before patients have been subjected to intestinal resection. The materials which are required for such a procedure are a dull-pointed spinal puncture needle, a 10 c.c. Luer's syringe, procaine hydrochloride for a local anesthetic, a Luer's syringe for the injection of the anesthetic, and cleansing fluids for the skin. The injections are given directly into the peritoneal cavity by strictly aseptic technic. Since October 1, 1928, more than 1500 patients, who submitted to operations which involved the colon, have received intraperitoneal injections of this vaccine before operation, to protect them against peritonitis.

In addition to the administration of vaccine, the dietary regimen has been greatly elaborated and plays an important part in the preoperative treatment (table 1).

Since we have employed this plan of management of patients who are to undergo operations which involve the colon, the mortality from postoperative peritonitis has been reduced more than 66 per cent; that is, where we previously lost three patients from the toxemia associated with peritonitis, one, or less than one now succumbs. This decrease in mortality hardly can be considered the result of any factor other than the preoperative care. It seems that in those cases in which fatalities with peritonitis now develop, the offending organisms are virulent types of streptococci, the exact nature of which we have not yet been able to determine. During the first three months of 1935, 102 patients, who had major diseases of the colon requiring resection, have been prepared and subjected to operation at the clinic without a death from peritonitis. We have made careful study of the reactions which have followed the injection of the vaccine. In all instances, a sharp elevation of temperature occurs; this ranges up to 102° F., and occasionally higher. In cases in which there is neoplasm of the colon, which has caused perforation of the intestine, or which has metastasized, the temperature curve is almost diagnostic if the patient has received an intraperitoneal injection of vaccine. The temperature recedes in a gyrate fashion and returns to normal 24 to 36 hours after the injection of the vaccine.

We are convinced that intraperitoneal vaccination against peritonitis, in addition to the other phases of the preoperative management, has appreciably reduced the death rate associated with peritonitis. It seems to us that further study will be necessary before it can be said definitely that immunity against peritonitis can be produced by inert substances. We recently have carried out investigations in an attempt to determine whether or not the blood

serum of a patient who has received the intraperitoneal injection of the vaccine of colon bacilli and streptococci will show an agglutination of the specific organisms. Agglutination tests for streptococci are unreliable. Slight elevation of agglutinin titer against the gram-negative bacilli, however, does occur. Further studies will be necessary to determine its importance. We hope, however, to compare the efficacy of the vaccine to that of the inert substances.

Preoperative measures for the prevention of peritonitis at this time include the following: (1) The isolation of patients, who are to undergo intestinal operations, on one floor of the hospital, under one group of nurses as a unit, and similar to the isolation of obstetric cases; (2) the administration of a diet which is rich in calories and which has the lowest possible residue; this will include a diet such as that outlined in table 1; (3) irrigations of the colon with physiological salt solution about every 12 hours for enough days prior to operation to empty the colon; (4) the liquid contents of the colon should be aspirated through the rectum or through a previously formed colostomy so that the patient will come to the operating room with an empty and dry colon; and (5) bacterin, consisting of streptococci and colon bacilli, should be injected intraperitoneally.

Other measures of prevention of death in association with peritonitis have been employed. About four years ago, Young, after observing the studies outlined here, decided to try amniotic fluid. His results in a series of 49 cases have been reported. He has been very much encouraged by its use. Our experience with this material has been limited, but so far, we have found no good reason to replace the vaccine by such substances. Our latest efforts have been directed toward the development of something which will combat the infection in that small group of patients in whom death associated with peritonitis still occurs. Weinberg, of the Pasteur Institute, has prepared two types of serum by immunizing horses, one with anerobic organisms and another by using colon bacilli. Both of these serums have had sufficient trial in the treatment of active toxemia associated with peritonitis to offer encouragement. Consequently, we have collected all of the bacteria which we could isolate from patients who have succumbed to the toxemia associated with peritonitis from the peritoneal fluid. Experiments are being carried out with these organisms, and horses are being immunized with them in the hope of developing a serum to combat this toxemia. It seems reasonable that such a serum may add another link in the chain of activities necessary for the management of this dreaded cause of fatality.

In addition, the other measures which we are employing meanwhile to combat the toxemia associated with peritonitis include morphine to increase intestinal tonus and to promote resumption of normal intestinal activity. This seems one of the best drugs for this purpose. In the early stage of paralytic ileus such drugs as physostigmine salicylate have been found helpful. All fluid and food are withheld by mouth. Small cup enemas of warm, stimulating solutions may be necessary. Physiologic saline solution and five to 10 per cent solutions of dextrose are administered, subcutaneously and intravenously, respectively. Supportive measures of all kinds may be added to the more specific remedies.

Table 1.

Non-residue Diet Before Operation*

Breakfast

Fruit juice, any kind, 1 glass.
Heavy cream, 4 tablespoonfuls.
Egg, 1.
Butter, 1 square.
Arrowroot cookies, 2.
Coffee.†

9:00 a. m.

Candy, 5 ounces, either pure sugar candy or milk chocolate without nuts.

Dinner.

Broth with 1 square of butter.
Gelatin, plain, 2 heaping tablespoonfuls.
Heavy cream, 4 tablespoonfuls.
Fruit juice, any kind, 1 glass.
Arrowroot cookies, 2.
Tea or coffee.†

3:00 p. m.

Fruit juice, any kind, 1 glass.

Supper.

Broth with 1 square of butter.
Steamed rice, 2 heaping tablespoonfuls†
Heavy cream, 4 tablespoonfuls.
Fruit juice, any kind, 1 glass.
Arrowroot cookies, 2.
Tea or coffee†.

*Contains approximately 2,300 calories.
†Sugar as desired for tea, coffee ,and rice.

Dr. Harry B. Gudgel gave the commencement address and delivered the diplomas at the commencement exercises of the Good Samaritan Hospital held in the Grace Baptist Church at 11th St. and McDowell Road at 8:15 o'clock, October 17, 1935.

Dr. O. B. Patton of Ajo, Arizona, was in Phoenix about the middle of October for a few days.

TREATMENT OF DEFORMITIES OF ANTERIOR POLIOMYELITIS

S. L. HAAS, M. D.
San Francisco

(Read before the New Mexico State Medical Society, at its Fifty-third Annual Session, held at Albuquerque, N.M., May 23 to 25, 1935.)

It is easier to prevent deformities in anterior poliomyelitis than to cure them. Therefore in the early parts of the paralytic stage the keeping in mind of a few principles will be of inestimable value.

In the first place deformity is usually due to two things: Poor position or contracture of strong muscles. Let us take for example a patient with complete paralyses of extremities and trunk muscles, leaving out, of course, the respiratory system. For that patient it would be necessary to assume a neutral position to protect all the muscles and prevent contracture. Thus we would have the patient lying flat on a firm mattress with a small pillow under the lumbar curve to protect the spinal muscle and prevent kyphosis or scoliosis. The arms should be kept in the position of 90 degrees abduction to protect the important abductors of the shoulder, the elbows flexed at right angles and the forearm in a position midway between pronation and supination. The lower extremities should be extended straight at the hip and knee joints and the feet at right angles to the leg. I might for instance show you what would happen if the legs were flexed at the hips at say 90 degrees if the extensor muscle were paralyzed. We would get a flexion contracture of the hip region which if allowed to go for a considerable time would become fixed and the cure would necessitate many months of treatment, with or without operation, and in the end possibly not be entirely corrected. Thus a simple precaution requiring very little effort would have prevented this deformity. The method of prevention does not necessitate any complicated apparatus; you need only to strap the arms to the top of the bed or support them on pillow splints. For the legs a simple long right angle splint made from a piece of board furnished with a foot piece and simple padding suffices. One may use plaster of paris, metal splints or braces.

With the recovery of certain groups of muscles it may be necessary to modify the treatment, remembering that protection from stretching is of prime importance in the recovery of a paralyzed muscle. Let us take for example the simple problem of a paralysis of the extensor muscles of the wrist. The deformity is a wrist drop and if the wrist is allowed to drop the strong flexors will surely produce permanent deformity of the wrist which may be difficult to overcome if allowed to remain for a long time. Furthermore, if the wrist is flexed the extensors are on the stretch and will not have a chance to recover when the ganglion cells have recovered and nerve stimulation has been restored. A simple wrist splint is all that is necessary to prevent the deformity and allow the restoration with the healing of the nerve lesions. With the subsidence of the acute muscle tenderness one can institute massage, electric stimulation, Roentgen ray, or other forms of light therapy. I feel however that protection from stretching is over 90 per cent important. Electrical treatment is good but can be abused. It must be given by an expert as improper application may be more detrimental than useful.

The conservative treatment must be carried out for at least a year as recovery is often delayed. There have been reports of cases after two years of treatment with no, or slight, improvement in the intervals who have recovered. However I feel that such cases are few and if no changes have taken place within the year operative intervention is justified. Neglected cases with deformity which have not been treated may recover even after a number of years. Recently I saw a patient with contracture of 12 years' duration who recovered a considerable amount of muscle power when the contracture was corrected and the stretched muscle put at rest in a protected splint. After conservative treatment has been carried out for a sufficient period without recovery one may resort to operative treatment to correct the deformities and improve the conformation of the limb.

In order to obtain correction of the deformities one may resort to several methods. Simple traction may be applied by means of a

Buck's extension for hip or knee contractures. The employment of plaster either by wedging or by use of hinges and turn buckles is usually a more direct and satisfactory method. For example: If one had a contracture of the knee a plaster of paris case may be applied to the extremity after which the plaster may be cut two-thirds around its circumference and then spread apart a little. In a few days it may be spread a little more and so on to full correction. Or the plaster may be entirely cut around and a hinge placed on either side after which a turn buckle can be inserted on the side of flexion. Tightening up the turn buckle gradually each day will cause a straightening of the flexed joint. Needless to say there must be adequate precaution to prevent pressure sores. After correction is obtained it is usually necessary to protect the extremity with a brace or splint to prevent recurrence of the deformity.

Some of the methods available for helping the crippled individual will be enumerated. One must have in mind that there are innumerable limitations and barriers against the restoration of the involved parts but what may appear to be a trivial or inadequate improvement from the original may be of great value to the patient. One often has to resort to an intricate and time-consuming form of treatment to help the patient even a small amount but it may be very valuable from his or her standpoint.

A general review only of some of the operations can be presented at this time. In the upper extremity perhaps the most serious and frequent disturbance is paralysis of the deltoid muscle. The patient is unable to raise the arm from the side of the body. There are two methods of helping this condition: Muscle transplantation or arthrodesis. Each has its advantages and disadvantages. For a muscle transplantation at the shoulder region there must be one or two good available muscles such as a trapezius or a pectoralis major, also several accessory muscles to help swing the scapula and aid in movement. For an arthrodesis of the shoulder joint it is also prerequisite that there be good shoulder muscles to move the scapula. If the humerus is united to the scapula and one has not the necessary muscles to rotate the scapula as the serratus—anterior, rhomboid and trapezius one can readily see that this would be a useless procedure. At the elbow joint the same two procedures, namely arthrodesis or transplant, are available. A useful operation is the transference of the flexor muscles higher up on the humerus making them act more as flexors of the forearm. At the wrist the desire is to obtain dorsal flexion because a wrist in the flexed position materially disturbs the function of the fingers. This one can readily see by trying to use the fingers while the wrist is flexed. The desired effect can be obtained by transplanting the flexor of the wrist into the extensor of the wrist or arthrodesing the wrist joint in the position of slight dorsal extension.

The treatment of paralysis of the fingers when extensive is not satisfactory, especially when the interossei and lumbricales are involved. There is one common lesion that is amenable to treatment; that is paralysis of opponens muscle of the thumb. It is this muscle that is so important in grasping—giving the rounded swing to the thumb. If the palmaris, flexor carpi ulnaris or flexors of the thumb are not paralyzed any of them can be utilized to help in this action. Or if none of these is present the first metacarpal can be arthrodesed to the trapezium.

In the lower extremities about the hip joint the main operation is the correction of the flexor deformity. This consists of releasing the muscles that are attached to the crest of the ilium. The muscles are stripped off and allowed to re-attach themselves at a lower level. This is the same as lengthening the muscles. For paralysis of the abductors one can transfer the tensor fascia backward or the gluteus maximus anteriorally. One can also run a piece of fascia from the erecti spini to the hip to act as an extensor. Ankylosis of the hip may be performed but is not advisable.

At the knee joint for paralysis of the quadriceps one can transplant the hamstrings to the patella, either the outer or inner, with very good results. Ankylosis of the knee may at times be advisable, especially in bilateral severe involvement of both extremities, thus doing away with the use of two braces.

For paralysis of the feet one can perform a series of muscle transplants in various combinations. Muscle transplant in the feet is

usually not advisable as it often does not hold up under severe strain. In selected cases it may be efficient and useful. The most satisfactory treatment for paralysis is the stabilization operation. If one visualises the ankle joint and tarsal joints the combination consists of almost a universal joint. With our normal muscle control we involuntarily fix these joints just like the guy ropes of a tent pole. If there is a paralysis of any of the muscles then the balance is disturbed and we have an unstable foot. To appreciate this fact think of the involuntary control we have over our feet; but occasionally when this control is lost, as in stepping on a rounded object, we turn our ankles. To reduce this instability in paralysis it becomes necessary to fix these joints. The most stable foot is from an ankylosis of the ankle joint and all of the tarsal joints. The stiff ankle and tarsal joints take away all the elasticity and the foot hits hard and walking is clumsy. It has been found that most deformities of the feet can be controlled by the so-called subastragaloid and transtarsal arthrodesis. This fixes the foot below the ankle so that it remains in a relatively set position. After this operation in paralysis of the leg below the knee braces are no longer necessary. The Whitman astragalectomy, removal of the entire astragalus with displacement of the foot backward, serves the same purpose but is not so satisfactory as the Hoke stabilization.

A most difficult problem is the treatment of scoliosis of the spine so often a sequel to anterior poliomyelitis. Up to a few years ago no satisfactory way had been presented but we now have the Hibbs-Risser method. Briefly this consists of the application of a plaster jacket taking in one leg and extending up to and including part of the head. The jacket is then cut in half at the apex of the curve after which two hinges are placed, one anteriorly and one posteriorly. On the concave side a turnbuckle is incorporated in the plaster. This is gradually turned up and a definite correction is obtained. A hole is then cut in the posterior part of the plaster and a Hibbs fusion is performed fixing the spine in the corrected position.

Loss of growth in unilateral paralysis is a frequent disability. If the inequality of the two limbs is not over one and one-half inches compensation for the loss may be by a suitable lift in the shoe. When there is a greater loss of growth, in order to avoid the wearing of heavy and cumbersome shoes, leg-lengthening can be satisfactorily performed. The lengthening is usually done in the tibia and fibula; femoral lengthenings are much more difficult. A simpler operation is to shorten the good leg by resection of the femur or to retard growth of the good extremity by destroying the epiphyseal plate.

This brief outline I hope will serve to give you an idea of the present acceptable methods for the treatment of permanent paralysis following anterior poliomyelitis.

It is a source of great pleasure to be able to help the crippled child, and to restore him or her as near as possible to be a normal and useful citizen.

NEWS ITEMS

Dr. and Mrs. A. L. Gustetter of Nogales have returned home following a short trip to Los Angeles.

Two very interesting motion pictures entitled: "Novocain in Obstetrics" and "Malaria" were shown before the Santa Cruz County Medical Society at their October meeting. These films are produced by the Winthrop Chemical Company, New York, and are well worth the consideration of any medical society. The films are furnished gratis.

A special excursion to Guaymas (Old Mexico) is being arranged by the Santa Cruz County Medical Society, following the 1936 meeting of the Arizona State Medical Association to be held in Nogales, April 23, 24, 25. The party will leave Nogales on Saturday afternoon, returning early Tuesday morning, thus affording those who make the trip two days of outing, fishing, hunting, boating, swimming, etc., at Guaymas. A twenty- dollar bill should cover all expenses per person. Full details later.

Dr. and Mrs. J. H. Woodard of Ruby have returned to their home following an enjoyable vacation to northern Arizona.

"The dead chicken won't win this time." Remember, old timers, the "cock-fight" in Nogales many years ago. Well! Get your money ready for several interesting events put on for your special entertainment during the 1936 Arizona State Medical Association meeting to be held in Nogales.

Dr. T. G. Reynolds of Esperanza, Sonora, was in Nogales recently enroute from California to his home in Mexico.

If plans do not go astray those attending the 1936 meeting in Nogales will be afforded a real pleasure in viewing quite a number of scientific and commercial exhibits. Full details later.

Dr. J. D. Hamer, President-elect of the Arizona State Medical Association, addressed the Santa Cruz County Medical Society on November 2nd. During his visit to Nogales details for the 1936 meeting was worked out. Dr. Hamer has rendered outstanding service to the profession of Arizona, so let's make the 1936 meeting the BIGGEST meeting in the history of the Association and in some manner pay Dr. Hamer a debt of gratitude which is justly his. This can only be accomplished by YOUR COOPERATION.

Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX. NOVEMBER, 1935 No. 11

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SOCIALIZED MEDICINE DEBATES

Not long ago a group of high school students called upon us seeking information on socialized medicine. The reason for their acute interest at this particular time is that they are preparing a debate upon the subject chosen for high school and collegiate debates this year throughout the United States which is: "Resolved: That the several states should enact legislation providing for a system of complete medical care available to all citizens at public expense."

Any physician may be called upon during the year by high school or college students for information upon this subject; therefore, we warn all physicians to be informed.

The American Medical Association has taken cognizance of this debate and since there will be a great demand for literature upon the socialization of medicine, the Association has prepared special pamphlets which it will distribute free to persons sufficiently interested to request them. The Maricopa County Medical Library of Phoenix and the El Paso County Medical Library have a considerable amount of material on the subject.

Debaters' hand books have already been prepared by various individuals. Probably most of these hand books present material slightly biased in favor of the affirmative even though the authors undoubtedly endeavored to be neutral.

On November 12 at two o'clock p. m. E. S. T. there will be a debate over the National Broadcast; for the affirmative, speakers are William T. Foster and Bower Aly, and for the negative Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association and Dr. Morris Fishbein, editor of the Journal of the American Medical Association.

The general sentiment among the medical profession who are informed is that these debates will be of much significance and will tend to crystallize public thought for or against state medicine. There will be a large number of these young persons who certainly will have definitely crystallized ideas after they have studied the subject. The audiences who listen to the debaters may be influenced one way or the other and may come to have positive ideas upon the subject—for or against state medicine.

It would seem that the medical profession has a definite duty to perform this winter which is to discuss this problem with any of the debaters who may be seeking information.

Our reaction, after having discussed the subject with one group of students, is that in the main the students are inclined at first to see but one side of the question; and that is the affirmative. It is no use to attempt to tell the young people that there is only a negative side to the question. In discussing the subject with them we believe it is well to let them know that there are certain definite arguments for a socialized system of medicine as well as strong arguments against most systems.

Among the arguments which are used in favor of socialized medicine are: A large portion of the population does not get the medical attention that it needs because it is not able to pay for it. Illness is unpredictable. It comes as a calamity and finds a large number of families unable to bear the expense necessary to give the sick ones the proper care. Those who have the least in a financial way are apt to have the most sickness. Many who are able to pay for minor illnesses find themselves completely swamped with expense by prolonged illnesses. The proponents say that there is no more reason why illnesses should not be paid

for through mutualization of cost than there is that fire losses or various other property catastrophies should not be paid for by insurance funds. They say further that public health is a public concern and that there is no more reason why therapeutics should not be handled by the Government than there is that prevention should not be of Government concern.

They say further that reform within any profession or group of individuals usually has to come from without. As an example, they point to the fact economists rather than bankers had to write and obtain legislation for the Federal Reserve System and though the bankers were last to act they now would not consider abandoning the Federal Reserve System.

Proponents of socialized medicine say further that it has ever been thus with reforms within large professional groups. They say that the legal profession will have to have outside help in order to reform the United States judicial system. They say that our profession is lethargic, that we are too well satisfied with the present system and cannot be aroused to do anything toward getting a better one.

They say that when the reform comes that the profession will be satisfied with it and will never under any circumstance be persuaded to change back to the present archaic system. There is the further argument that many of the medical men of today are not being properly remunerated for their services; it is only the fortunate few with rich clienteles who have incomes commensurate with the average physicians' training and dignity.

The proponents say further that the type of change which is to come should rest largely with the paying public who should have the final vote as to when, what, how, and who shall be paid for medical services. They say too, that the medical profession should be guiding the changes which are coming and should not sit idly in a self-contented manner. They point to the changes which have already come and say they are not as good as they should be because the medical profession manifested no interest in the changes.

A large amount of medical work has already been appropriated by the state and nation. Seventy-three per cent of the hospital beds of the nation are supplied by public funds. Consider the Veterans' Bureau hospitals and patients, the state insanity and tuberculosis hospitals and patients, and the county and city hospitals and patients.

They say further that the arguments which the medical profession uses against the proposed changes are weak and scarcely up to the dignity of the profession.

The opponents of state medicine say that unquestionably certain claims made by the proponents are entirely correct and truthful, but that they fail to take into consideration certain important features and possibilities of human psychology, of wasted money, of excessive taxes, of crooked politicians, of stunted medical progress, of getting into a bad mess and not being able to get out, of having an increased amount of sickness instead of less, and of many other dangers.

Had even one of the European socialized systems of medical practice reduced the amount of sickness or lowered the death rate of that nation there is no question but what the American physicians and people would be ready—willingly ready—to adapt and adopt that system for our own use.

In the next place there is not the urgency for a change in the system of medical practice in this country that there was in European countries when they adopted socialized systems of medical practice. The standard of medical attention given our indigents and our low income groups has never been surpassed and probably never equalled in any other nation.

Of all the schemes of socialized medicine for this nation none takes into consideration the one group which now gets the least medical attention—the indigents, and those whose incomes are barely above the starvation level. The usual scheme provides that those who can shall pay a certain amount of their incomes into a common fund, the government will then add a sum in proportion, the whole amount will be turned over to the politicians, and from this point on it is hard to tell where we go or what the plans embody.

In any plan whether it is State Insurance or other method for mutualization of cost, the psychology of patients and of physicians must be taken into consideration. There is the old adage which in a measure applies about a free horse being ridden to death. It is said that there is a real danger that patients will call the physicians times without number for illnesses that are of no concern—perhaps mostly for

imaginary illnesses until the public will become a mass of hypochondriacs. Those of us who have had much experience in connection with medical schools know the state of mind of the sophomore and junior medical students when they first get real contact with sick people; in their imagination they have tuberculosis, syphilis, malta fever, heart disease, locomotor ataxia, and nearly every disease they study. The medical students, however, soon get upon an even keel about their supposed diseases. The lay persons who get introspective ideas of diseases and their own bodies are truly to be pitied, and become an extremely difficult problem to deal with. When doctors' offices become infested with a considerable number of hypochondriacs even though they may pay the doctors' office rents life is truly miserable for physicians as well as for that particular group of patients. Were a doctor compelled to see such patients all day long without opportunity and privilege of sending them statements of the amount due at the end of the month, we would fear for that physician's sanity. The upshot of this influence would be that physicians would become so pestered with hypochondriacs that they would suspect all patients that presented themselves for treatment of being hypochondriacs and might possibly and often very likely would fail to give care to the occasional really sick ones mixed in with the mentally worried ones. Let those who doubt this statement visit the county physician's office under the present regime in almost any place in the southwest. This psychologic factor is not to be dismissed too lightly. The English Panel physician regularly sees his panel patients—50 to 60 daily perhaps, in about an hour—at the rate of about one a minute. This fact speaks volumes for the seriousness of this very question of imaginary illness.

Even without graft the cost of medical care to the public must needs be tremendously increased in any plan of state medicine as the large administrative forces would have to be paid—in addition to all that is now being paid.

None of the schemes yet proposed offers any plan for the elimination of the substandard practitioner and patent medicine evils and other elements racketering upon the unfortunates.

It is certain that every plan of state or socialized medicine now in force in any nation is faulty. None is perfect. None has done what should rightfully be expected of it.

Various medical organizations throughout the United States are trying out plans of various sorts. Out of these will come a truly American plan, or plans that may have opportunities of doing what the altruistic proponents of state medicine actually hope for.

Our own viewpoint is that we are heading for a change in our present system of practice. Just what that change will be, it seems impossible to predict. We are inclined to believe that the San Diego plan as now adopted and modified by several city and county medical societies comes the nearest of being the ideal of any that has been suggested.

We believe that every medical organization should have a committee of its strongest and most active members actively studying this problem from every angle. We believe it is up to the medical profession to see that the highest type of medical service is given to our public. We believe we should think of the indigents as well as of the low income group. We believe that our services are not more important to the health and welfare of the people than are the grocers' products, but that we are on a different level than are grocers; theirs is a business; ours is a profession; more is expected of us. It seems to us that unless we solve this problem and do it in the near future that the public will solve it for us, and their solution will certainly not be altogether satisfactory to us.

We believe that the providing of a day's work to any person able and willing to work in order that he may purchase his necessities of life, including medical attention, will go far toward rendering a Socialized System of Medicine unnecessary or at least inadvisable until we know that the right type has been found.

We believe the day's work should be found in private industry and if not to be found there it should be available at all times and in all localities under Government provision; if nothing more useful can be found, let our Government use the laborer that needs money for necessities in building mountains, carrying back mountain soil from the valleys, to save us from having a completely flat earth. Jobs and the money therefor are needed more than socialized medicine.

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Mires R. Jackson, Mgr.

ATTENTION! PHYSICIANS AND SURGEONS OF THE SOUTHWEST

A most cordial invitation is extended to you to be present at the 22nd Annual Clinical Conference of the Medical and Surgical Association of the Southwest, to be held in El Paso, Texas, on November 21, 22 and 23.

Had I the authority, I would command you to be there; but not having it, I can only request your presence and trust that all you who possibly can will attend.

If you have not looked over the program carefully, as published in the October issue of Southwestern Medicine, kindly do so at once and I am sure you will agree with me, that it is going to be a most interesting and instructive meeting. You will note that the speakers on the program are eminent men from outside our district, all recognized as leaders in their respective fields. They will appear repeatedly on the program on various subjects and will be there to conduct clinics and round table discussions. Everyone will benefit by attending this meeting. This will be a real post-graduate course. Come!

Our association is attempting to establish this type of clinical conference, bigger and better each year, and we earnestly solicit your support, cooperation, and attendance.

All reputable physicians of the Southwest, whether members of local societies or not, are cordially invited to attend.

The Women's Auxiliary of El Paso County Medical Society is making special arrangements to entertain the visiting ladies, so be sure to bring them along.

C. R. SWACKHAMER,
1st Vice President and
Acting President.

Medical Society of the District of Columbia Has Definite Medical Economics Program.

The Medical Society of the District of Columbia has been working almost continuously for the past three years on various aspects of the economic and social problems of medicine. Progress has been made along the following lines:

1. The membership of the Society has been kept interested and informed on social-economic questions with the result that the Society has invariably supported the plans of the Committee on Medical Economics.

2. The hospitals of the community have co-operated in plans to eliminate all corporate practice of medicine and to establish the principle that the practice of medicine is the function of the medical profession while the hospitals furnish certain facilities for such practice. This principle has been accepted by community and university hospitals alike.

3. The practice of medicine in and through government agencies has been thoroughly surveyed and efforts are constantly being made to confine such practice within legitimate and necessary limits.

4. The entire problem of workmen's compensation practice has been thoroughly investigated and many abuses and unethical practices have been eliminated.

5. Contract practice has been concretely defined and brought under the control of a new standing committee of the Medical Society of the District of Columbia known as the Compensation, Contract and Industrial Medicine Committee.

6. Thorough and constant cooperation with the Public Health Department and the Board of Public Welfare has been maintained to the great benefit of preventive medicine and the control of infectious disease.

7. The Medical Economic Security Administration of the District of Columbia has been established and is in successful operation. This coordinating agency represents and acts officially for (a) the Government of the District of Columbia through the Permit Office of the Board of Public Welfare; (b) the public clinics maintained by the Health Department; (c) the Council of Social Agencies; (d) the Community Chest; (e) all of the community hospitals, including their outpatient departments; (f) the Medical Society of the District of Columbia, the Medico-chirurgical Society of Washington (colored), the District of Columbia Dental Society, and the Robert T. Freeman Dental Society (colored).

In a single building are housed the four instrumentalities of the administration by which applicants for medical and dental care are sorted, classified, and appropriate assistance provided. They are:

First—The Central Admitting Bureau for Hospitals, accepted by all local agencies for the care of the sick as the sole channel through which their clientele may come. Through it the indigent sick problem is being brought under control and by it there has been created a general feeling of confidence that medical charities are being wisely used and abuses eliminated.

Second—The Permit Bureau of the Board of Public Welfare, through which the completely indigent are appropriately placed in state maintained institutions—the economic status of the applicants having already been determined by the Central Admitting Bureau.

Third—The Community Chest, as represented by the Central Admitting Bureau, itself an agency of the Chest, by which the semi-indigent are hospitalized by subsidies from the Chest to supplement the patients' own resources.

Fourth—The Medical-Dental Service Bureau, a non-profit, non-interest-charging finance corporation, owned, controlled and supported by the medical and dental professions, to provide a means for post-payment on the budgeting plan for the emergency medical, dental and hospital needs of people requiring such assistance. This Bureau is financed by voluntary deductions from the minimal fees paid through it to the physicians, dentists and hospitals serving the patrons of it.

8. A group hospitalization plan, which is a civic enterprise on a non-profit basis, and which eliminates every form of medical service and confines itself to hospitalization, has concluded its first full year of operation. Its success is assured.

Through the above plans and their natural developments which are now under way, the medical and dental professions of Washington are confident that many of the most difficult economic and so-

cial problems of medical care will be solved. In all of these enterprises the medical and dental professions retain a controlling representation.

During the time of development of these constructive plans there has been constant apprehension that the widespread propaganda for health insurance would result in passage of laws either in the National Congress or in State Legislatures which would set up state-controlled systems of medical practice.

The Medical Society of the District of Columbia is now convinced that the time has arrived for nation-wide, concerted action under the direction of organized medicine to combat the adoption of health insurance schemes and to inspire and encourage the medical profession to take charge of medical service in every community throughout the United States. This Society recognizes that the economic problems which have given rise to health insurance propaganda must be met adequately by and within the medical profession if this end is to be attained.

The Society, therefore, requests that every State Medical Society in the United States join with it in a militant and intensive campaign to inform all county and other medical organizations and the individual members of such organizations of the evils of health insurance so that they will be impelled to oppose its adoption in every legislative body throughout the Nation.

The Society especially requests the Board of Trustees of the American Medical Association to make available its great resources in actively opposing the adoption of health insurance plans in any part of the United States. It recognizes the value of the great amount of factual data which has been accumulated and made available to the profession through the Bureau of Medical Economics but it believes that the time has now arrived for active opposition and an intensive campaign to inform and arouse the medical profession to the dangers to the profession and the public from the adoption of health insurance laws. It conceives that this can be accomplished through a corps of speakers made available by the American Medical Association to state medical societies, through radio broadcasts and by newspaper and magazine articles to combat the constant stream of articles favoring health insurance.

In addition, and in particular, it is our belief that the American Medical Association can most effectively oppose the propaganda for state administered health schemes by proposing something better, and can be of great assistance to the general profession by giving publicity to the beneficent effects of various plans now being carried out by constituent medical societies in many localities. The public should be informed that medical progress is farther advanced in the United States than anywhere else in the world, and that plans are in operation now under direction of the medical profession itself for the explicit purpose of making the fruits of this progress available to our people of every economic class. The American Medical Association should so recognize and publicize these efforts of its constituent bodies that the American people may be brought back to the habit of looking with confidence to the medical profession for the supply of all the health needs of the populace. Further, the American Medical Association, which claims to speak for the whole profession and which is widely recognized by the press and the people as so speaking, should so recognize these social experiments of its constituents that they may be identified by the public as a general movement of the whole profession aimed at the solution of a na-

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tional need rather than at merely local difficulties. The powers and resources of the Association should also be made available to the consituent societies that the movement may be stimulated and guided into a concerted effort of such proportions and extent that it obtrudes itself upon the national consciousness as the answer of the medical profession to the propaganda for health insurance.

The people should know that health insurance is directed at only a small part of the total problem and that its evils quite offset its advantages even in that small field. They should know that the American Medical Association has already tackled the job for the people in a better way, and will carry it through if given time, confidence and support.

This Society conceives that only the American Medical Association working through state and county societies, and at their request, can accomplish the objects sought, which are so essential to the continuation of medical progress and the welfare of the public.

The Medical Society of the District of Columbia directs this plea for militant action to its sister societies throughout the Nation and to the American Medical Association of which it is a component part, in the confidence that prompt and concerted action can stem the tide of propaganda for health insurance, and that it is only through the active participation of the American Medical Association that our efforts can be made timely and effective.

If the above considerations seem valid and compelling to the Councils of State Societies it is respectfully recommended that action be taken early this fall, before the state legislatures are in session, to arouse every county medical society to the necessity for concerted action during this entire winter, and that each state request the active assistance of the American Medical Association.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director New Mexico State Bureau of Public Health

Convention

These notes are written in Milwaukee at the 64th annual meeting of the American Public Health Association. Crowded sessions give all the appearance of a record attendance. There is enough of disagreement to make the sessions interesting. As a science public health is still in a stage of rapid development. New vaccines are under discussion. Against poliomyelitis the vaccines of both Kolmer and Brodie have been used in recent months. Critics of these vaccines were Drs. Thomas M. Rivers, of the Rockefeller Institute, and James P. Leake, of the U. S. Public Health Service. Kolmer's vaccine is a live attenuated virus. It has been given to some 12,000 persons of whom eight have developed poliomyelitis. Dr. Kolmer is satisfied that they developed the disease because they received the vaccine too late to prevent it. The critics are not satisfied that the disease may not have been caused by the vaccine. The Brodie vaccine is considered safe but of unproven efficacy. Of the 8,000 who have received this vaccine none has yet developed poliomyelitis. More experience is needed.

Dr. Sauer presents results obtained with pertussis vaccine. He doubts whether it has curative value but believes that in children under three years of age eight c.c. of approved commercial pertussis vaccine, injected sufficiently long before exposure, will immunize about 90 per cent. Children over three years of age will probably need a total of 10 or more cubic centimeters. His experience is that of 127 vaccinated children known to have been exposed to contagion 10 developed whooping cough.

The section on vital statistics of the Association has determined that birth certificates need bear no record of illegitimacy of birth. Their decision to seek the modification of birth certificates so that this information shall not appear on them was approved by the governing council of the Association. It is probable that by the time babies now being registered have grown to maturity they will have no cause to care whether such information is recorded or no.

Dr. Jean Downes, of the Milbank Memorial Fund, reports on the spread of tuberculosis in a rural community (Cattaraugus County, New York). He finds that for every active case resulting from a familial contact there are two in the community as

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a result of extra-familial contact. Such contact was shown to occur in group relations such as schools, factories and other work centers.

The new president-elect is Dr. Thomas Parran, health officer of New York State, and the convention city for 1936 is New Orleans.

EL PASO COUNTY MEDICAL SOCIETY

Reported by Dr. L. O. Dutton, Secretary.

Meeting was called to order by Dr. B. F. Stevens at 8:00 P.M. Sept. 23, 1935. The minutes of the previous meeting were read and approved.

Dr. Leslie Smith presented a paper "Premalignant and malignant Lesions of skin treated by endothermic methods." Discussed by Drs. Cathcart, Turner, Laws, Von Briesen, Gallagher and Stevens.

Dr. Von Briesen presented a paper "Preview of Treatment Methods of Carcinoma of the Breast." Discussed by Drs. Miller, Cummins, Waite, Cathcart, Green, Awe, Turner, Gallagher, and closed by Dr. Von Briesen.

Miss Dorris Weaver asked the cooperation of the society to let the public know what is being accomplished by the medical profession for tuberculosis through the medium of articles in the newspapers. She wishes more articles.

A letter from Dr. Holman Taylor was read.

Dr. Charles Hennick described two cases being handled through the Medical and Dental Central Service.

The meeting adjourned at 10:00 P. M.

Meeting was called to order at 8:00 P. M. November 14, 1935, by Dr. B. F. Stevens, at Hotel Dieu Nurses' Home.

The minutes of the previous meeting were read and approved.

Dr. Ralph Homan presented a paper entitled "The Tuberculous Apex and Phrenic Evulsion." Discussed by Drs. Egbert, Long and R. B. Homan.

Dr. W. T. Chapman presented a paper entitled "Causes of Irregular Teeth and Benefits Gained by Treatment." Discussed by Drs. Vandevere, Gwinn, Gorman, Ralph Homan, Robt. Thompson, B. F. Stevens and Rennick.

Dr. Vandevere presented three cases of foreign bodies in air passages, as follows: Chicken bone—adult; bean in right bronchus—child; sewing machine bobbin in esophagus—9-year-old boy. Removals by esophagoscopy.

Dr. R. B. Homan, Jr., presented a case of Tuberculosis, 20 years duration, with abscess of costal cartilage or sternum external to the pleural cavity.

Application of Wilmer Adams to the soceity approved.

The Woodman Circle Baby Show was announced to the Society.

Mr. Evans from Central Medical and Dental Service gave a report as to what the Bureau has done and made an appeal for more support from the Society.

Dr. Ralph Homan proposed appointment of an advisory committee to the Central Medical and Dental Service. Dr. Paul Gallagher moved to allow the Board of Control to appoint the committee. Motion was made that the President appoint the committee; passed.

Dr. Egbert suggested a list of names. The following members were appointed: J. W. Cahtcart, John Hardy, Stephen Schuster, Paul Gallagher, K. D. Lynch, Willis Waite, T. J. McCamant, James A. Pickett, H. T. Safford, E. B. Rogers, H. H. Varner, and Hugh White.

Meeting adjourned.

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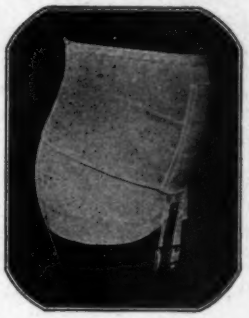

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PROCEEDINGS OF THE NEW MEXICO MEDICAL SOCIETY

53rd Annual Meeting Albuquerque, N.M., May 23-25, 1935.

(Concluded from October issue)

MALPRACTICE INSURANCE:

Dr. L. B. Cohenour (Albuquerque) stated that a representative of the insurance company which insures the members of the Society against malpractice in the State had recently reported that there were more and more malpractice suits being filed all the time, many of them in Albuquerque, with consequent judgments which had to be paid, and that if some means were not devised to curb the matter, the Company would have to withdraw from the State of New Mexico. It was suggested that a plan such as followed in Colorado be adopted, i.e., that a Medical Defense Committee be appointed, the duty of such committee being that in case of suit being filed or threatened, the facts be ascertained from each side, with an effort to adjust differences if possible, either by squelching the case, compromise, or if Court action be unavoidable, then to ascertain the best means of fighting it. Dr. Cohenour further stated that unless some such action was taken, the insurance company would not continue its program, and if it should withdraw members of the Society would be left entirely without protection, as there is no other company writing malpractice insurance in New Mexico, or at least in Albuquereque.

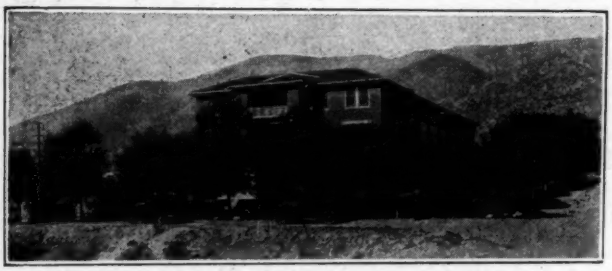
Motion by Dr. G. T. Colvard (Deming) that a Committee on Medical Defense, composed of three members, be appointed by the President to confer with the representative of the U. S. Fidelity & Guaranty Insurance Company on behalf of the Society, to adjust any difficulties that may arise and treat the whole situation, was seconded by Dr. J. W. Stofer (Gallup) and carried.

The President, Dr. C. W. Gerber, appointed as members of Committee on Medical Defense: Dr. W. R. Lovelace (Albuquerque); Dr. Carl Mulky (Albuquerque); Dr. L. B. Cohenour (Albuquerque). Later this Committee was increased to five members, the two additional members named being Dr. F. F. Doepp (Carlsbad) and Dr. C. H. Gellenthien (Valmora).

F. E. R. A. AGREEMENT:

Dr. Carl Mulky (Albuquerque) referred to the Committee report and the discussion yesterday in regard to the F.E.R.A. medical relief and stated that it was impossible for the ladies who were present at the meeting yesterday to attend the session today, and he had been requested to introduce a motion to appoint a Committee with whom they might confer and arrange plans later. Motion was read and presented as follows:

That a Committee be appointed to be known as the Medical Relief Committee, to confer with the New Mexico Emergency Relief Administration relative to medical care of indigents in New Mexico; that this Committee be given full power to act for the New Mexico State Medical Society until the next Annual Meeting in revising F.E.R.A. fee schedules or setting up any plan for the administration of medical relief that may seem advisable." Dr. Mulky further stated that this Committee would meet with representatives of the F.E.R.A. and would constitute the Medical Relief Committee, to



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administer funds allotted for medical relief under such plans as the Committee devised, and that under the set-up in mind ,all medical orders instead of being issued by a case-worker or layman would be issued by a registered nurse, so that every Relief Bureau would employ a registered nurse who would be responsible for issuing such orders.

Dr. C. A. Miller (Las Cruces) stated that he would like to see a new agreement drawn up and that he thought Doctors who are not members of the State Medical Society should be barred from getting relief work. "We have several abortionists and narcotic addicts in our locality who are doing quite a lot of this work," the Doctor stated, "and if only members of the Medical Society could be given these orders, it would help us a great deal."

Dr. G. T. Colvard (Deming) stated that under a recent ruling of the Attorney General there could be no discrimination made as to practitioners, and that while he was in accord with the spirit of the previous remarks, yet there was no authority whereby orders could be confined to members of the Society.

The motion of Dr. Mulky was thereupon seconded by Dr. W. R. Lovelace (Albuquerque), and carried. The President appointed as members of the MEDICAL RELIEF COMMITTEE: Dr. Carl Mulky (Albuquerque); Dr. G. T. Colvard (Deming); Dr. R. L. Bradley (Roswell); Dr. V. E. Berchtold (Santa Fe), and Dr. F. H. Crail (Las Vegas).

No further business arising, the meeting adjourned at 3 p.m.

AFTERNOON SESSION, MAY 24, 1935.

The afternoon session was opened with a lecture by Dr. W. P. Holbrook, Tucson, Arizona, on "Present Day Conception of Arthritis."

Dr. R. W. Lamson, Los Angeles, Cal., gave a paper on "Hay Fever."

Dr. Orville H. Brown, Phoenix, Arizona (Fraternal Delegate from that State), lectured on "Allergy Problems."

Papers presented during the day were discussed by Drs. S. L. Haas, San Francisco; L. M. Miles, Albuquerque; C. A. Miller, Las Cruces; V. L. Burton, Albuquerque; R. O. Brown, Santa Fe, and H. H. Latson, Amarillo, Texas.

The Entertainment Committee had arranged a dinner dance for the evening, which was held at the Franciscan Hotel, was well attended and provided pleasing diversion for all.

THIRD DAY, MAY 25, 1935

The scientific session opened with a demonstration clinic, conducted by Dr. R. W. Lamson, Los Angeles, Cal., showing types of asthmatic patients. Three cases were exhibited.

Dr. Felix P. Miller, El Paso, Texas, Fraternal Delegate from Texas, presented a paper on "Apical Thoracoplasty in Pulmonary Tuberculosis."

Discussion of Dr. Miller's paper was opened by Dr. L. S. Peters, Albuquerque, participated in by Dr. C. H. Gellenthien, Valmora, and closed by Dr. Miller.

Dr. A. J. Scott, Los Angeles, Cal., read a paper entitled "Acute Contagious Diseases from the Standpoint of the Pediatrician."

The concluding paper on the program was presented by Dr. J. Arnold Bargen, Division of Medicine, The Mayo Clinic, Rochester, Minn., entitled "Management of Peritonitis as Based on New Conceptions of its Nature."

NEWS ITEMS

Dr. G. H. LaBerge, who has been located at Payson, Arizona, for the past two years, has moved to Peoria, Arizona.

Dr. and Mrs. C. R. Swackhamer of Superior, Arizona and their two sons visited the Hawaiian Islands during the summer, returning in time to place their older son Robert in Stanford University where he is taking a course preparatory to the study of medicine.

Dr. Fred C. Jordan of Phoenix, Arizona, member of the Orpheus Club, was elected president of the club for the ensuing year. Dr. Jordan has taken a prominent part in the Orpheus Club since its organization.

Dr. R. J. Stroud of Tempe, Arizona, was elected Vice-president of the Orpheus Club of Phoenix for the ensuing year. He has been active in the club since its inception.

Dr. Nelson D. Brayton of Miami, former District Governor of Lions International, talked before the annual Ladies Meeting of the Miami Lions Club on a subject of interest to the women.

The Medical Auxiliary of the Maricopa County Medical Society has inaugurated Mrs. J. M. Meason, the wife of Dr. Meason of Chandler. She has already started plans for the coming year, and under her guidance the Auxiliary has started its activities.

Dr. Trevor G. Browne of the Phoenix Clinic in Phoenix, president of the Little Theatre, engineered the initial meeting of the year and has plans under way that should develop the Little Theatre a great deal during the year.

Dr. Clarence Gunter of Globe was a recent Phoenix visitor.

Dr. and Mrs. C. A. Donaldson, former residents

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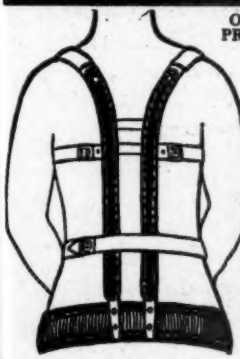

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of Mesa but now of Tucson, spent the summer in Minnesota and recently visited Mesa.

Dr. and Mrs. Carlos Craig are about to occupy their new home in Encanto tract in Phoenix, Arizona.

A Trachoma Institute was held at Fort Apache, Arizona from October 4 to 11, 1935 for all Physicians and Nurses in the U. S. Indian Service doing trachoma work.

The Institute was conducted by Dr. Polk Richards, Medical Director of trachoma activities, for the Indian Service. Dr. Phillips Thygeson, of the department of ophthalmology of the University of Iowa Medical School was guest speaker. He remained during October to do experimental work. Dr. Francis I. Proctor, consulting Ophthalmologist for the Indian Service ,was present. Ten special physicians and 16 nurses doing trachoma work attended.

The U. S. Indian Service maintains an all trachoma school of 275 children at Ft. Apache. Trachoma free children go to other schools on the reservation. A small 18-bed hospital is run in connection with the school for acute cases and operative work.

Dr. L. M. Miles was elected President of the Albuquerque Kiwanis Club for the coming year at their regular election last week.

Dr. J. W. Myers is a recent addition to the Veterans Hospital at Albuquerque. His specialty is neuropsychiatry.

Dr. Sophie D. Aberlee, who has been doing research work among the Pueblo Indians and who has recently been appointed general superintendent of the Pueblo Indians, addressed the Bernalillo County Medical Society at its last meeting on "Medical Problems among the Pueblo Indians."

Dr. John E. Bacon of Miami, Arizona, National Committeeman of the Democratic Party, has declined to make the race for re-election. Dr. Bacon recently took a prominent part in the Loyalty Program sponsored by the people of Gila County under the Arizona Loyalty Program.

Dr. Trevor G. Browne of the Phoenix Clinic addressed the Roosevelt Neighborhood Woman's Club on Tuesday, October 24, on the subject of "Child Health."

Dr. E. Payne Palmer of Phoenix proposed to the American College of Surgeons that the college should sponsor First Aid Stations at points where accidents commonly occur.

Dr. and Mrs. T. C. Harper of Globe, Arizona, visited in Phoenix during October.

Dr. C. W. Sult of Phoenix is a proud father of a budding lawyer, Preston F. Sult, who has opened offices in Coolidge, Arizona.

The Phoenix surgeons who attended the meeting of the American College of Surgeons in San Francisco were: Drs. Henry T. Bailey, Thomas W. Woodman, Kim Bannister, E. Payne Palmer, W. O. Sweek, Victor Randolph, A. M. Tuthill, and J. M. Greer.

Dr. J. D. Hamer, President-elect of Arizona State Medical Association, gave the commencement address at the Nurses Commencement Exercises in Globe, Arizona during October.

Dr. Benjamin Herzberg of Phoenix, Arizona is soon to take unto himself a wife, Miss Dorothy Kline of Los Angeles, the daughter of Mrs. Sally Kline, formerly of Omaha, Neb. The picture of Miss Kline as reproduced in the Phoenix paper indicates a very charming young woman.

Dr. John K. Nattinger, son of Mrs. J. B. Ryland of Arcadia is studying in London, England under S. Harold Gillies, celebrated British surgeon. For the past two years he has been in Vienna and Paris.

WALTER G. HOPE

Once more the messenger of death has invaded our circle and has called from our midst our oldest member in point of continuous membership.

Walter G. Hope was a member of our society for forty-four years. He lived the highest traditions of our profession. He was loved by both his patients and his colleagues in his profession. More than once have I heard him say that aside from his immediate family his professional brethren meant more to him than any others in the world. While on account of failing health he has not been active the past few years, his interest in his associates never flagged; like the Savior of men, "He went about doing good." His life is an inspiration to those of us who are left.

Be it resolved that a copy of these remarks be spread on our minutes, be mailed to his daughters and to Southwestern Medicine, and that an appropriate wreathe be placed on his grave.

—*Bernalillo County Medical Society.*

Dr. Hope died, at the age of 75 years, September 22, in Hollywood, California, where he went in 1929 because of failing health. He graduated from Jefferson Medical College in 1886 and located in Albuquerque in 1891.

The Maricopa County Medical Auxiliary will meet November 4 in the home of Mrs. James I. Moore at the Arizona State Hospital for an evening of entertainment. The Hallowe'en motif and decorations will prevail. The officers of the Auxiliary and the Advisory Board met during the latter part of October with Mrs. James M. Meason of Chandler.

Dr. W. W. Wilkinson is a member of the Board of Directors of the Florence Crittenton home in Phoenix which position he has held for several years.

Dr. Fred W. Parrish of Bowie, Arizona, announces that a new racket is being worked in that locality by three women who claim to be nurses and that they represent the State Health Department, under whose auspices they are selling subscriptions to a weekly pamphlet concerning health for 99 cents. No such women are connected with the State Health Department of Arizona.

Dr. H. B. Lehmberg, a local physician of Casa Grande, Arizona, has been serving as city physician and giving his time to inoculating the pupils of the city schools against the usual diseases for which inoculations are given. He is an ex-officio member of the board of health of the City of Casa Grande.

Mr. Clarence N. Boynton, chemist and bacteriologist of the Pathological Laboratory of Phoenix, was recently honored by being made a Fellow in the American Public Health Association.

Charles N. Ploussard, who has had offices on the sixth floor of the Professional Building, announces his removal to suite 907 and 908 of the same building.

Benson Bloom, M. D., announces the opening of offices in association with W. Paul Holbrook, M.D., in 505-510 Valley National Bank Building, Tucson, Arizona.

Dr. M. I. Leff, of Glendale, Arizona, has been asked by the Globe High School to speak before the general assembly on the situation in the Italo-Ethiopian conflict.

Dr. Walter D. Hunt, a retired physician prominent in Kansas medical circles some years ago, and who has been living in Douglas for the past nine years, died November 1, 1935.

BOOK REVIEW

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY: A complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc.; By W. A. NEWMAN DORLAND, A.M., M.D., F.A.C.S., Lieut-Colonel, M.R.C., U. S. Army; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. With the Collaboration of E. C. L. MILLER, M.D., Medical College of Virginia; Seventeenth Edition, Revised and Enlarged; Octavo of 1573 pages with 945 illustrations, including 283 portraits; Philadelphia and London; W. B. Saunders Company; 1935; Flexible and Stiff Binding. Plain $7.00 net; Thumb Index $7.50 net.

Although this popular dictionary has 1573 pages it is under two inches in thickness. Every page has been gone over, a large number—several thousand—new terms have been added and the entire volume has been edited by the staff of the American Medical Association. It would seem that every effort has been exerted to insure accuracy. The price of $7.00, or $7.50 for the thumb index, is certainly as low as could be expected.

A TEXTBOOK OF BIOCHEMISTRY: Edited by Benjamin Harrow, Ph.D., Associate Professor of Chemistry, The City College, College of the City of New York and Carl P. Sherwin, M.D., Sc.D., Dr. P. H., LL. D., Member of the Staff of St. Vincent's Hospital and French Hospital, New York City; 797 pages with 52 illustrations; Philadelphia and London; W. B. Saunders Company; 1935; cloth, $6.00 net.

This text book on biochemistry is unusual in that each chapter is prepared by a different author, so that it represents not simply the ideas of a single teacher, but a compilation of the living organism in thirty chapters. The preliminary chapters on the living cell and the fundamental food materials are very complete, occupying over 250 pages. These are followed by chapters on the various phases of metabolism. Of particular interest to the reviewer were the chapters on mineral metabolism, biochemistry of bone and the function of water in the organism. Ordinarily a compilation of this sort would lack consecutiveness,—a desirable quality in a text; this factor has been preserved by the careful editing, so that in passing from one chapter to another the reader is not aware of any confusion through changes in style or thought. It is a book which every physician desiring to keep abreast of the times should have available. W. W. W.

NEW AND UNOFFICIAL REMEDIES, 1935. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Cloth. Price, $1.50. Pp. 510. Chicago: American Medical Association, 1935. .

The splendid work of the Council on Pharmacy and Chemistry is too well known for their New and Nonofficial Remedies to need any special review. Among the new preparations accepted this past year are carbarsone, hippuran and diodrast (urographic contrast media for intravenous use), carotene, dilaudid, neo-synephrin hydrochloride and diothane (local anesthetic).

Several preparations previously accepted have been dropped, for example bacilli acidophilus preparations and certain antiseptics.

There are 510 pages including an index. In addition there is Bibliographical index to proprietary articles and unofficial articles not included in N. N. R. of 61 pages.

With the vast amount of proprietary preparations which are "detailed" to physicians' offices especially with a flowing stream of comment as to their "extreme value" the physician should have a reference work to tell him what he wishes to know about them. This book is the answer. The price is inconsequential.

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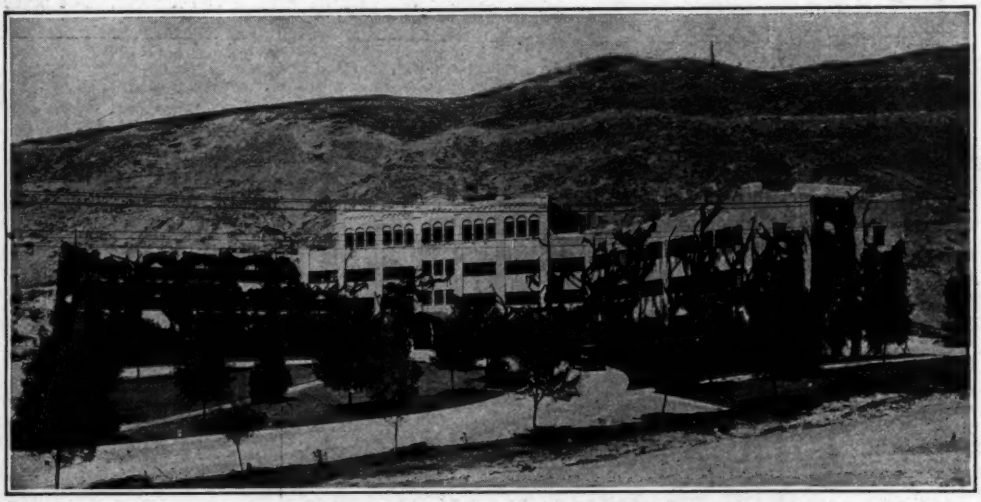

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